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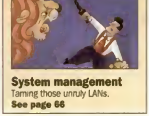

System management
Taming those unruly LANs.
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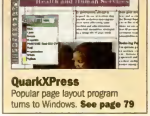


QuarkXPress
Popular page layout program turns to Windows. See page 79

DECEMBER 14, 1992 THE VOICE OF PERSONAL COMPUTING IN THE ENTERPRISE VOLUME 14, ISSUE 50

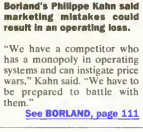
Kahn admits poor marketing hurt Borland

By Shawn Willett

BURLINGAME, Calif. — Borland International Inc. president Philippe Kahn admitted last week his company made a series of marketing mistakes this year that could cost the company an operating loss for the current quarter.

"1992 was not a good year for us," he said at an industry conference here.

To reduce costs for the coming year, the company will lay off 15 percent of its workforce, about 350 people, Kahn said later at a press conference.



Borland's Philippe Kahn said marketing mistakes could result in an operating loss.

"We have a competitor who has a monopoly in operating systems and can instigate price wars," Kahn said. "We have to be prepared to battle with them."

See BORLAND, page 111

Apple, Novell to broaden Mac access to NetWare

Firms team to bring Mac OS to NetWare, DR DOS

By Tom Quinlan and Vance McCarthy

Apple Computer Inc. and Novell Inc. are joining forces to produce technology that will give Macintosh users full access to NetWare services for the first time, sources said.

The efforts aim to create a strategic alliance that will integrate the Macintosh more fully into the corporate environment. The companies hope to combine key elements of the Macintosh operating system into Novell's NetWare and DR DOS operating systems.

Eventually, the agreement is expected to provide NetWare users with a friendlier environment while bringing portions of Apple's operating system into cross-platform environments supported by Novell.

As part of the arrangement, Apple is working with Novell in an attempt to put its Finder disk and file management software in both NetWare and DR DOS.

"[The initiative] will put Apple firmly in the corporate network," said Wilson Wong, president of Asante, the developer of network management software for the Mac and PCs. "Apples and PCs

See APPLE, page 111

Microsoft rushes Access to market, bugs included

By Doug Barney

Microsoft Corp.'s $99 Access, just out the door and selling like hotcakes, is riddled with bugs, according to users.

Application crashes and lost or corrupted data top the list of complaints users and vendors cited both over CompuServe and in interviews with *InfoWorld* late last week.

"I think [Microsoft] has a major problem on their hands," said Vadim Yasinovsky, the president of Clear Software, a developer of database development tools. "I don't understand why they had to rush [Access]

See ACCESS, page 111

E-mail vendors blast Microsoft

Claim server delay will give giant unfair advantage

By Cheryl Gerber and Stuart J. Johnston

Electronic mail vendors said last week that Microsoft Corp. purposely misled them when they agreed to write E-mail servers for a Windows messaging interface that now will not arrive until late 1993.

The delay will stall the market for the vendors' servers and give Microsoft an unfair one-year lead, the vendors said. Any applications written to take advantage of the Messaging Applications Programming Interface (MAPI) before then will have to use Microsoft Mail as the basis for message transport.

The outcry erupted after Microsoft said that a full implementation of MAPI, called Extended MAPI, will not be ready for a year. The company made the statement at a Windows for Workgroups developers' conference held at its campus in Redmond, Wash., two weeks ago.

"Peoples' jaws just dropped," said an E-mail developer who was there. Mail service vendors in attendance included MCI

See MICROSOFT, page 111

IBM to peddle microkernel technology

By Ed Scannell

IBM will promote its microkernel technology as a standard that would let makers of proprietary operating systems integrate existing applications as well as create a new model for development of object-oriented applications.

Big Blue will lobby this idea not just among PC operating system makers, but as high up as those makers of minicomputer-level software. The effort can be seen as a pre-emptive strike against strategies being pieced together by Microsoft Corp.

IBM says its microkernel, code that underlies the operating system, will permit many

See IBM, page 111

First Look / Kevin Strehlo

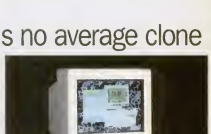
Dell's 486SX system is no average clone

The new 486L line of Dell desktop PCs proves that Dell Computer Corp. isn't just a clone maker anymore. The 425SL desktop machine is innovative in the areas of upgradability, troubleshooting, and ease of maintenance.

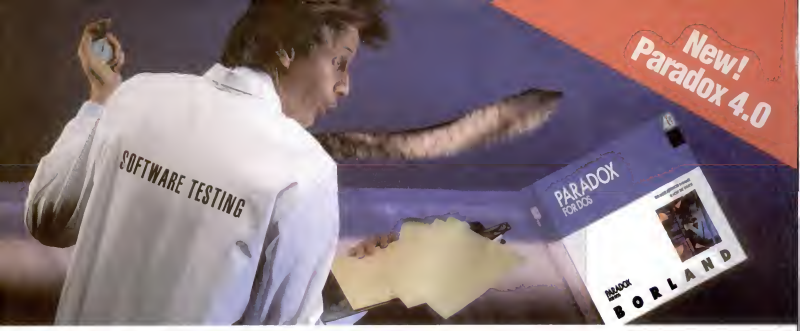
And it performs. The 425SL 25-MHz 486SX machine I've been testing received an 82.28 on the BAPCo SYSmark92 without the optional cache upgrade. That beats the 80.45 recorded by its predecessor, the Dell 486P/25, which was the fastest 25-MHz 486SX *InfoWorld* had tested previously.

Adding the optional 128K cache is made easy by an idiot-proof connector and might be worth the $100 price. Dell has submitted SYSmark92 numbers to BAPCo that show an 8 percent improvement from adding the cache, which we were unable to test.

See FIRST LOOK, page 111



The latest Dell 25-MHz 486SX received the highest SYSmark92 since its predecessor.



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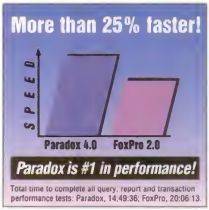
Paradox 4.0 comes with new, all-purpose memo fields that allow you to add virtually unlimited text anywhere in your application. Plus you can store anything you want in the new binary field—documents, bit-mapped graphics, multimedia data—and manipulate it under program control.



"Tuned-up Paradox 4.0 speeds past FoxPro 2.0."

InfoWorld *product comparison, September 28, 1992.*

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†Each additional user requires Paradox LAN Pack, sold separately. ‡Paradox SQL Link sold separately. Copyright © 1992 Borland International, Inc. All rights reserved. All Borland product names are trademarks of Borland International, Inc. ■ BI 4892

IBM may lay off another 20,000 to 30,000 personnel

Cutbacks will hit hardest in manufacturing, R&D

By Ed Scannell

In a special board meeting to be held this week, IBM will explore ways to lop another 20,000 to 30,000 employees from its payroll, bringing the total number of workers leaving the company in little over a year to almost 70,000.

But unlike the 40,000 who opted for the company's generous early retirement plan offered this past summer, some of those leaving the company will likely do so through the company's first forced layoffs, sources within the company said. (See "IBM ends full-employment plan; major cutbacks due," June 29, page 1.)

In this latest cutback, IBM will eliminate a number of manufacturing and research and development facilities across the country, including some that work on future microcomputer technologies, sources said.

"R&D is going to be cut big time," said one source inside IBM. "They will close some major facilities and probably lay off a bunch of people."

Significant cuts in research and development resources could diminish a major advantage IBM has had over competitors in creating state-of-the-art technologies such as its Micro Channel Architecture.

IBM's decision to transfer many of the 900 software engineers from development labs to its new client/server computing unit is just one indication that IBM wants to reduce the heavy costs associated with research, observers said.

"They are trying to get their talent away from the broad-based R&D to more focused kinds of products and services to make some money," said Bill Bluestein, analyst with Forrester Research Inc., in Cambridge, Mass.

In 1991, IBM spent $6.64 billion on research and development. It spent about the same on R&D in 1992, according to a company representative.

"I predict layoffs won't happen across the board," said Sam Albert, president of Albert Associates, a consulting firm in Scarsdale, N.Y. "They will be done on the basis of results for the individual business units."

IBM will offer employees its Individual Transition Option (ITO), or early retirement program, although this version will not be nearly as attractive as the previous one. Those who do not accept or are not offered the program will very likely be laid off, said sources familiar with IBM's plans.

It is unclear how many of the 20,000 to 30,000 employees IBM can afford to offer ITO, sources said IBM has already announced $5.4 billion in pretax charges to shed 40,000 employees and multiple facilities this year.

"That IBM is considering this confirms the industry is in its greatest contraction since its birth," Bluestein said. "This isn't a bump in the road toward greater growth. It is an indication of the serious restructuring going on in the industry."

FTC may seek Microsoft injunction

By Stuart J. Johnston And Scott Mace

If the Federal Trade Commission requests a temporary injunction against Microsoft Corp. to force it to halt alleged monopolistic practices in distributing MS-DOS, it may be just the tip of the iceberg.

A report last week in *FTC: Watch*, a Washington newsletter that covers the FTC, said the commission's staff had delivered a 250-page report recommending the agency invoke a little-used clause of its charter to seek the injunction.

The preliminary report is likely to be the beginning of a much larger probe dealing with Microsoft's alleged actions to thwart competition, said the newsletter's publisher, Art Amolsch.

Staff attorneys are also examining other aspects of Microsoft's business practices, including whether the company gave its own applications developers unfair advantages by providing them with information not available to competitors, *FTC: Watch* said.

Although lawyers and analysts are skeptical that the FTC would succeed in getting an injunction, the commission successfully invoked the clause earlier this year to halt price-fixing by infant-formula manufacturers.

If the FTC requests a temporary injunction and is successful, it can then move for a permanent injunction, said one analyst familiar with the commission.

Microsoft officials said they are continuing to cooperate with the FTC. They confirmed that a delegation from Microsoft met with the FTC staff last month.

AT DEADLINE

IBM to ship 486 PS/1s with larger hard drives

IBM has started shipping seven new versions of its entry-level PS/1 line, all of them based on the 25-MHz 486SX processor. All of the systems ship with 4 megabytes of RAM and either a 129- or a 170-megabyte hard drive. Each comes with monitor, keyboard, and a broad array of software, including DOS 5.0 and Windows 3.1. Prices are expected to range from $1,699 to $2,100.

— Tom Quinlan

Everex on the brink of bankruptcy

Ailing Everex Systems Inc. released a statement announcing that its president and chief operating officer, Harold Clarke, and chief financial officer, David Zacarias, have left the company and that it is now expected to lose between $80 million and $100 million this year on revenues of $503 million. The company previously predicted a loss of $35 million dollars for the year ending August 2, 1992.

"Everex expects that the auditor's opinion on the financial statements will express doubt about the company's ability to continue as a going operation," the statement said.

The company has also defaulted on a loan agreement with its creditors but is still trying to avoid a Chapter 11 filing.

With recent layoffs, Everex's work force is down from 2,100 employees early this year to 1,100 employees, according to Mike Whalen, an Everex representative. The company is still accepting orders from customers for all products on its price list, although there is a backlog for some items, Whalen said.

— Shawn Willett

Claris names chief for new division

Claris Corp. late last week named its former vice president of U.S. sales to head up its new software publishing division. Bruce Chizen had been at Claris for five years and had held the position of vice president of U.S. sales since 1990. Before that he held various sales and management positions at Microsoft Corp.

The new division, Clear Choice, will publish Macintosh and Windows software from independent developers. The company will give its marketing clout and distribution channels to the small developers while offering users software that complements other Claris software, including FileMaker and ClarisWorks. It will focus on utilities, personal productivity software, and games, Claris officials said.

The first two offerings from the new division, a file-finding program and a 24-bit color package, are scheduled to ship in January. Retrieve It will sell for $89; BrushStrokes will cost $139.

— Yvonne Lee

SGI lets workstations do Windows

Users of Silicon Graphics Inc. workstations will soon be able to run Windows applications on their systems, the company said last week. SGI and Insignia Solutions Inc. will announce a new version of Insignia's SoftPC emulation program on December 12. The program will let SGI customers take advantage of Windows' personal productivity applications without having to load up their desks with two machines, an SGI representative said.

— Cate Corcoran

SuperMac plans first color printer

SuperMac Technology plans to round out its line of high-end desktop publishing peripherals by introducing its first color printer early next year. The ProofPositive dye sublimation printer will cost less than $10,000 and will offer full-color bleeds on small pages, and it will also print on A3-size pages. It will incorporate Electronics for Imaging's color management system, according to president Mike McConnell. ProofPositive is designed to provide a proofing tool along with the company's high-end monitors and graphics boards.

— Yvonne Lee

Distributed Thinking / Stewart Alsop

Japan knows how to build ISDN, but we know how to use it

I've been recounting many of my international notebook experiences recently, but the coolest of all has to be my most recent. Before I was scheduled to leave Japan last Wednesday, I found myself in a hotel with hard-wired, rotary-dial telephones — not the best scenario for telecomputing. But I also discovered that the hotel had one of NTT's new, ISDN-capable pay phones in its lobby. (NTT is Japan's equivalent of the old, undivested AT&T.) Fortunately, a few days earlier I had toured NTT's Kasumigaseki Communications Center, in Tokyo, where the Japanese telephone company shows off its latest technologies. The tour lady had demonstrated the ISDN pay phone using a notebook computer with a regular analog modem. (The pay phone has two jacks, one analog and one digital.)

Having had the demonstration, I was ready to use my notebook. So I plugged my modem into the analog jack. (Why aren't external RJ-11 jacks standard equipment on U.S. pay phones?) Then I dialed into my network through USA Direct. The only problem is you need to push the "switch" button to change from voice to data mode; that's the secret my demonstration had revealed.

The bottom line: I was standing at a pay phone in a hotel lobby in Kyoto, Japan, connected directly to my network 5,328 miles away collecting my electronic mail so that I could answer it on the airplane on the way home. And I knew, based on my exposure to how the Japanese use computers, that only an American (or an NTT researcher) could figure out how to use a notebook computer on a pay phone. It made me feel proud to be an American!

ISDN JOURNEY

My boss keeps nattering on about ISDN, but I wonder what the big deal is. My tour of the NTT showroom was instructive. Our tour lady showed us about a dozen different applications of ISDN.

File transfer: A customer buys two special-purpose terminals that allow him or her to copy 1 megabyte of data from one floppy disk to another in about 40 seconds from one remote site to another. If you buy the deluxe version, in which the terminals have a hard disk, you don't even need to attend to the receiving terminal, because the hard disk will store the incoming data until you have a chance to put a floppy disk in! This is the most popular application.

Beepers, pagers, and LEDs: You can broadcast short messages to as many as eight LEDs — those electronic strip signs with messages dancing across them. With ISDN, you can have a computer rotate messages to the signs. The tour lady cited gas stations as the most obvious user for this application.

Video answering machine: For this experimental application, NTT paired a videophone very much like AT&T's Videophone 2500 (which has just come to market) with a VCR like NEC's PC VCR. The result is that when someone with a videophone calls your videophone while you're not at home, the machine will answer, show the caller a prerecorded video message, and then let your caller record a video message.

Distributed concertos: You can hold a concert with different musicians in different locations and merge the music into a single digital broadcast. This, too, was an experimental application.

We are constantly told that Japan is way ahead of us in implementing ISDN. Our tour lady confirmed this for us, as she said that NTT is using fiber-optic cable for nearly all of Japan's telephone backbone. And, with the appropriate equipment — and for a hefty fee — virtually every household can receive ISDN service, although not over fiber-optic cable. She also revealed to us that ISDN is very popular, because NTT has 140,000 customers with ISDN connections (in a country with a population of more than 130 million people).

When we asked what someone might use the ISDN pay phone for, though, she was stumped, because ISDN is not useful unless you know that you have it available from one end to the other.

The truth is, of course, that ISDN is great in theory but doesn't do anybody any good until everybody has it. And Japan isn't any ahead of the United States in figuring what to use it for. So the fact that the best use of the digital pay phone is for the analog modem jack is indicative of the problem — the Japanese are great at organizing the resources to build an infrastructure for something like ISDN (or high-definition TV), but they aren't very good at actually using it. So there's a good chance that the American's messy, undirected way of adopting ISDN will be more effective in the long run.

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This One

7XSY-9YY-DGND

Borland to boost database products with Arago acquisition

By Scott Mace

Borland International Inc. last week acquired from WordTech Systems Inc. dBase-related technologies that it hopes will speed future database development.

WordTech's research and development team brings Borland solid expertise in SQL, which will accelerate connecting dBase into the Integrated Database Application Programming Interface, a Borland representative said.

The Arago line of database management software will offer Borland expertise in SQL, compiler technology, and multimedia, the representative said. However, the next versions of dBase for DOS and Windows will not be affected by this acquisition, the company said.

Analysts interpreted the acquisition as beneficial for both Borland and its database product.

"I think it'll be a win for Borland and for the dBase product line if the next major dBase DOS release is predominantly Arago," said Marc Schnapp, executive director of the XBase Institute of El Sobrante, Calif. "The product needs a modern user interface."

Borland will not ship WordTech product technologies, but users will be offered discounts for upgrades to Borland products. WordTech said it will support the products through January 2, 1993.

Technology from Arago will appear in the next major release of dBase IV but not in the initial release of dBase for Windows, said Vince Mendillo, Borland's dBase product manager.

"We're evaluating a lot of technologies Arago brings to the table, including tools and compiler technology, as well as [the Arago developers'] design methodologies," Mendillo said. Arago's adherence to IBM's Common User Access interface "will be a fundamental design consideration as we move forward."

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Lotus to augment Notes, cc:Mail with workflow software

By Doug Barney

Lotus Development Corp. packed another weapon into its workgroup software arsenal with workflow software from Action Technologies.

Under an agreement announced last week, Lotus and a group of key resellers will offer the Action Workflow Management System to users of Notes and cc:Mail. Action has also agreed to create a special version of its Action Workflow Management System tuned to the Lotus interface.

The Action product includes a server engine for tracking and managing information, tools for building applications, and analysis tools.

Lotus demonstrated Action's workflow software at the October NetWorld show and had it running on Notes 2.0 and the unreleased Notes 3.0. Lotus is tuning Notes and cc:Mail to take advantage of Action's workflow features.

No terms of the agreement were disclosed. The price of a completed workflow application could be several hundred dollars per user, said Brownell Chalstrom, Action senior vice president of product development.

The application will not be sold as packaged software. Instead, users within organizations may develop a work process design and let corporate programmers or VARs create the implementation.

For the record

In our November 30 product comparison (page 58), we compared the Creative Labs Multimedia Upgrade Kit to just the audio board offering from other vendors. While we noted the inclusion of the internal CD ROM drive in the $799 Upgrade Kit, we should have given the price of the card when purchased separately: $229.

The information in the chart "North American PC software application sales," November 30, page 16, should have been credited to the Software Publishers Association.

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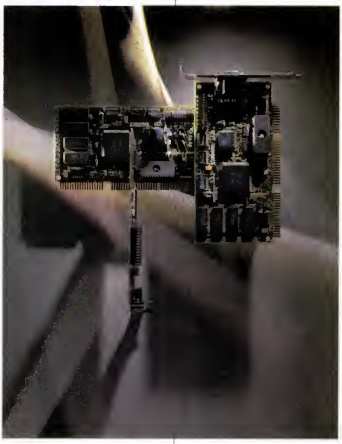

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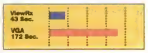

Windows spreadsheet tests show that Kingston's ViewRx makes your applications run three times faster.

ViewRx is based on the Weitek 5186 chip that has Windows BitBLT and line draw functions built in. That means that these often used Windows functions are handled by ViewRx, not by the CPU. And that means better performance for you. ViewRx supports up to 1024 x 768 screen resolution to fit even the largest spreadsheets on the screen. For the least possible screen flicker, ViewRx offers a 72Hz refresh rate and supports non-interlaced mode. ViewRx comes complete with trouble free drivers for Windows 3.1 and popular CAD packages.

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Identical Excel spreadsheet tested on 386SX-20 PC with ET-4000 VGA and ViewRx cards. All Trademarks and Registered Trademarks are of their respective holders. Kingston and Kingston Technology are Registered Trademarks of Kingston Technology Corporation.

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THE INSIDE NAME IN UPGRADES

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Apple scanner to bundle Ofoto

By Jeanette Borzo
And Kelley Damore

Apple Computer Inc. and Light Source Inc. will paint a colorful future for Macintosh scanner users next month when Apple introduces its first 24-bit color scanner bundled with a color version of Light Source's scanning software.

The Apple Color One Scanner and Ofoto 2.0 will be announced at next month's Macworld Expo and are due to ship to Macintosh users in February, according to sources familiar with the companies' plans.

The Greenbrae, Calif.-based Light Source, which also will sell Ofoto separately, is working on a Windows upgrade to Ofoto that will be released sometime after the first quarter.

The Apple 24-bit color flatbed scanner can capture up to 16.8 million colors and offers 8-bit gray-scale capability. The scanner offers 400 dot-per-inch (dpi) resolution but uses software interpolation to pick up additional dots between each of the scanned dots — giving a perceived resolution of 800 dpi.

The scanner is based on a Tokyo Electric engine and features a one-pass scanning design. The machine, equipped with a SCSI adapter, also offers QuickTime image compression and will be priced below $1,995, said sources briefed on Apple's plans.

"An Apple scanner would have to exceed Hewlett-Packard [ScanJet IIc] in capability, performance, and gee-whiz types of features to catch my attention," said Craig Cline, associate editor for the *Seybold Report on Publishing Systems*, in Malibu, Calif. "The day has long passed when Apple can introduce a peripheral and users will come rushing."

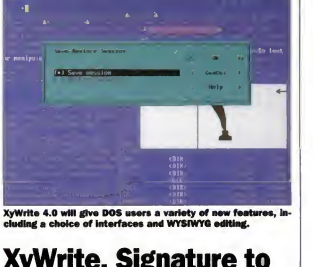
MACWORLD EXPOSITION
SAN FRANCISCO

Ofoto 2.0, which can switch between gray-scale and color scanning, offers a new feature called adaptive calibration. "It can scan an image and print one that matches the original without any user intervention," a source said.

Ofoto 2.0 will eliminate moire patterns in images and will be compatible with Apple's new operating-system-level color management software. (See "Macintosh to match colors," January 20, page 1.)

A background operations feature lets users scan in images while working in other applications.

Both Apple and Light Source officials declined to comment.



XyWrite 4.0 will give DOS users a variety of new features, including a choice of interfaces and WYSIWYG editing.

XyWrite, Signature to share Windows future

XyWrite for DOS is due for upgrade

By Jeanette Borzo

The Technology Group plans to ship a Windows-based word processor next quarter, providing a Windows upgrade path for users of the DOS-based XyWrite, Signature, and Nota Bene word processing programs.

The Baltimore, Md.-based software vendor, which recently acquired XyQuest Inc.'s XyWrite and Signature as well as N.B. Informatics' Nota Bene, also plans to ship XyWrite 4.0 for DOS users early in the first quarter.

Signature, codeveloped with IBM, has had a dubious future ever since IBM closed its desktop software division in January and returned Signature's marketing and distribution rights to XyQuest.

"For users, it's wonderful news," said Tim Bajarin, president of Creative Strategies, in Santa Clara, Calif. "They thought since IBM dropped [Signature] the product was going to get clobbered."

A Windows version of Signature is belatedly in beta testing and is due to ship in March or April. (See "Signature for Windows coming," March 9, page 15.)

Once called Signature for Windows, the new Windows word processor will now more likely be named XyWrite for Windows.

The option to work with a command line or Windows interface in the new Windows product is a favorite feature with beta testers.

"You can still have the command line," said beta tester Bob Cesari, partner at Cesari & McKenna in Boston. "If you're a fast typist, it's easier to type a command than to use the mouse and bring up the menu. But you can use [the menus] for commands you don't use as much and don't remember."

"I find it easier to use than [Lotus'] Ami Pro," said beta tester Tony Kahn, a commentator for American Public Radio's "Marketplace." "You can change your formatting on the fly more easily if you know the commands."

Both the DOS and Windows versions of XyWrite will ship for $495, with special upgrade prices for existing users.

Unix vendors strike out at Microsoft

Campaign seeks to steal thunder of Windows NT

By Jim Hammett
And Vance McCarthy

The industry's largest coalition of Unix vendors, concerned that Microsoft Corp.'s Windows NT could erode their markets, launched last week a counteroffensive aimed at containing Microsoft's success in the high-end desktop arena.

Unix International (UI) — a nonprofit group of more than 300 Unix hardware and software vendors, ISVs, and system integrators — distributed a white paper that points out NT's deficiencies compared with Unix, scheduled a series of cross-country seminars for ISVs and end-users, and committed to a large 1993 advertising budget.

According to UI, NT lacks multiuser capabilities, is not an open standard, and may prove more costly to deploy than users think because it will require a CD ROM-equipped PC to run.

The UI moves come amid initial NT beta testing, which Microsoft officials have admitted includes a large number of Unix users.

"We believe Windows NT is a very powerful and full-featured operating system that represents modern technology in operating system design," said a Microsoft representative. "In talking with Unix ISVs and people who write to Unix operating systems and who understand operating systems, they are excited about NT."

Analysts said although it might take NT several years to become a robust enterprise operating system, it could easily capture the low-end server and high-end desktop markets.

"There's a good chance the low-end server and high-end desktop markets will [merge] with NT and Pentium," said Paul Cubbage, an analyst with Dataquest Inc., in San Jose, Calif. The combination could offer better price-performance and user friendliness than Unix, Cubbage said.

But NT's success among Unix users will mostly depend on Microsoft's ability to deliver a working product, said Jeff Henning, analyst at BIS Strategic Decisions, in Norwell, Mass.

"Most users will sit out the first release [because] there are still a lot of memory and performance problems to be worked out," Henning said. People remember it took Microsoft years to get a bug-free version of Windows, he added.

— Shawn Willett contributed to this story.

Microsoft toolkit will help applications exploit Windows for Workgroups

By Doug Barney

Microsoft Corp. will ship this winter a toolkit that lets users of Word, Excel, and Project modify their applications to take advantage of Windows for Workgroups' peer-to-peer features.

Microsoft disclosed its plans to release workgroup add-ins at a strategy briefing last September. At the briefing, Microsoft demonstrated a version of WFW that allowed users to share documents and track annotations. To gain this capability with Word, users must build it with the toolkit. However, this type of capability is expected in a future version of Word, company officials said.

The toolkit will essentially extend the macro languages in existing packages to provide workgroup capability.

Users can receive the toolkit free or for a nominal cost, said Dan Williams, an Excel product manager involved in the kit's development. "You will see a kit with Word and Excel and Project tools, as well as some cooperative stuff from other groups within Microsoft," Williams said.

Future releases of major applications will include built-in workgroup features, Williams added.

Much of the work involves tapping into Microsoft's Messaging Application Programming Interface (MAPI), a set of functions to create, store, and transmit messages. MAPI is more complicated than common macro languages and may be beyond even sophisticated corporate macro programmers.

"These are simply to take the level of expertise required to use MAPI down to a macro writer level," Williams said.

Word and Excel can call directly into MAPI, which means Microsoft has only to extend the macro language to gain full access. Project is different: It requires Microsoft to create stand-alone miniapplications that will integrate Project with Mail. These applications will be driven through Dynamic Data Exchange, Williams said.

Windows for Workgroups will also take advantage of the simple file and record locking found in today's popular database programs.

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The ThinkPad's screen is a thing of almost aching beauty. Its 640 × 480 VGA resolution is sharper than that of many desktop computers. It displays 256 colors. And it's the biggest screen on any notebook. All of which makes ThinkPad very easy on the eyes.

The ThinkPad comes standard with things some other notebooks don't even offer as options. Like 4MB of memory you can upgrade to 16MB. 120MB of hard disk space. Pre-installed DOS 5.0 and

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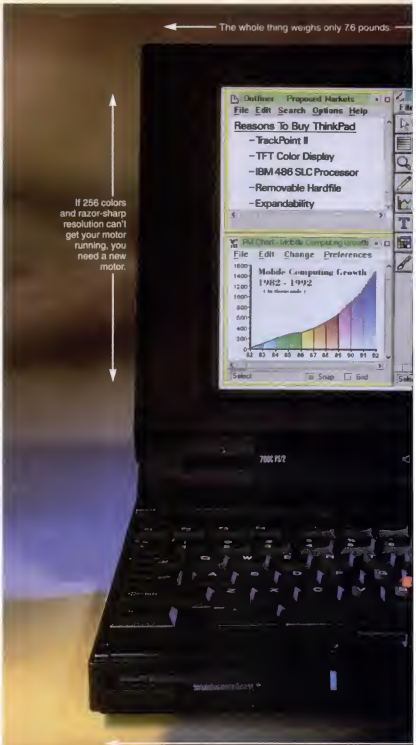

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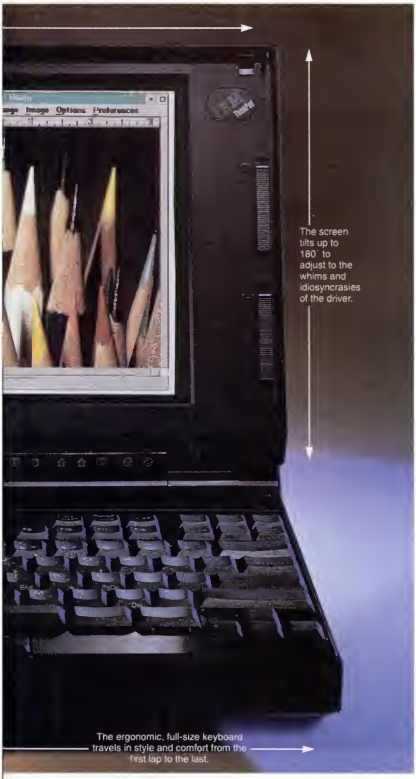

PRODIGY.* You can soup it up with a turbo-charged 486SLC2 50/25 MHz processor—just one of the upgrade products IBM offers. And the hard disk is removable, which makes it easy to upgrade and share your ThinkPad, not to mention the great security and virtually unlimited storage.

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Weight	7.6 Lbs. with Battery	6.5 Lbs. with Battery
Warranty	3 Years (International)	3 Years (International)
Price**	$4,350	$2,750

If you have questions along the way, your ThinkPad Models 700C and 700 are supported by HelpWare,™ an invaluable service package that includes a three-year international warranty.[1]

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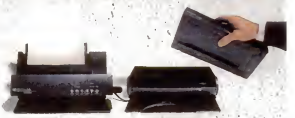

The HP DeskJet Portable.

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Hewlett-Packard presents the DeskJet for the jet set. The new HP DeskJet Portable printer lets frequent travelers create great-looking documents anywhere they go.

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NEWS / SOFTWARE

PIPELINE

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Expense It speeds up expense entry
With Expense It 2.1, from On The Go Software, users can include a description of expenses, payments, clients, and projects in the pop-up Code Windows to make entering expenses faster. It also runs in less than 400K of RAM, and with the Itinerary module users can set the length of expense reports. The $129 application still links with Quicken files and Sharp's Wizard, and generates ASCII files. On The Go can be reached at (714) 489-4050.

SpreadBase, a category-based modeling tool from **Objective Software Inc.**, lets users create and maintain dynamic business models that can be changed, eliminating the need to manually relocate text and numeric data and formulas as information changes in spreadsheets. It is now available for the Mac at $695. (415) 324-3333.

SuperMac Technology Inc.'s DigitalFilm, a video production system for the Macintosh, allows the user to make preproduction comping and postproduction editing possible on a NuBus Macintosh II and Quadra computers. DigitalFilm retails for $5,999. SuperMac can be reached at (408) 245-2202.

PROMOTIONS

Renderize includes Visual's 3DFont
Users who buy Autodesk Inc.'s 3D Concepts modeler and Visual Software Inc.'s Renderize for Windows Light can get one of the two software packages at half price. Renderize for Windows Light retails for $495 and includes Visual Software's 3DFont, a $195 Windows utility for extruding fonts and symbols. Autodesk sells 3D Concepts for $249. Users can contact Visual Software at (800) 669-7318.

BUNDLES

3G Graphics offers clip-art library
3G Graphics has bundled several of its clip-art libraries onto one CD ROM for Macintosh and PC users. Images with Impact offers more than 1,500 graphic images — most in color — with more than twice that number accessible to users of compatible drawing programs, such as Illustrator or CorelDraw. Images with Impact is shipping now for $499.95. (800) 456-0234.

Painter 2.0, due to ship early next year, offers a variety of new effects and tools, including a spatter airbrush.

Testers say Painter 2.0 about to make a splash

By Jeanette Borzo

Users who thought Fractal Design Corp.'s Painter was one of the more interesting and innovative graphics packages to surface last year should hang on to their berets.

Painter 2.0, currently wowing beta testers, is due to ship to Macintosh users at Macworld next month and to Windows users in February.

Offering a generous array of new tools, Painter lets users work with their computers to simulate natural artistic media such as oil paint, pastels, watercolors, and a variety of paper and canvas types.

Fractal has upgraded its $399 software to give users more flexibility in importing and editing photos and in producing their work with the use of direct color separations and other export features.

"It's twice the package it used to be, and it used to be a monster," said beta tester Scott Billups, director of Viz-Net Productions, in Los Angeles. "For someone who is really into graphics, design, and production — whether it's print, prepress, broadcast, or film — this is indispensable."

New media options in Version 2.0 include marbling, watercolor with diffusion, glass distortion, and a spatter airbrush. A new liquid effect makes an image pliable so the user can run a chosen tool through the image to reshape and distort it.

Fractal has added antialiasing to almost all of Painter's effects, most which can be previewed before being applied. With 2.0, users also can apply multiple light sources and colored lights to images in a variety of positions.

"It will lay spotlights without

See PAINTER, page 21

Fonts offer type scaling, low price

Users praise fonts' high quality

By Doug Barney

Font newcomer SoftMaker last week released 124 PostScript and TrueType typefaces with a distinctly European flavor and won praise from users for its low prices.

The $99.95 infiniType Plus, which includes fonts that were originally designed by European foundries, comes bundled with a module that scales PostScript Type 1 fonts from within popular DOS word processing applications.

The company claims that its font package sets a new standard for low pricing and high quality, a stance that got some backing from an independent beta tester.

"They are a very good value for the money," said Paul Friedman, vice president, product, for National Benefit Resources, a Minneapolis-based group insurance firm.

According to Friedman, the fonts are appropriate for "routine correspondence" and other simple tasks.

For producing camera-ready art, however, Friedman plans to stick with high-end font packages.

Friedman has used other low-end font packages, but found that many were not complete families, or lacked quality.

"There is a new price point, and the competition will have to match it," Friedman said.

While some font packages do sell for hundreds of dollars, Public Domain PostScript and Adobe Type Manager fonts are available for as little as $1.75 for a disk of 30 fonts.

Other firms such as SWFTE Int'l Ltd. in Hockessin, Del., sell low-cost fonts. Typecase from SWFTE includes a font manager and over 130 TrueType fonts for $69.95.

The fonts in infiniType Plus have come from URW, a German type foundry, and Graphitech of Switzerland, and are all hand digitized, said Sage Osterfeld, president of SoftMaker.

> **"There is a new price point, and the competition will have to match it."**
> *Paul Friedman*

SoftMaker has taken the digitized fonts, and worked to optimize output on laser and ink-jet printers.

infiniType is currently available, and supports MS-DOS, Windows, OS/2, and Apple Macintosh computers.

SoftMaker will release volumes of 50 new fonts every three months, which will sell for $50.

SoftMaker, based in Carlsbad, Ca., can be reached at (800) 346-5764.

Kit gives Autodesk 3D Studio special effects for movies

By Kelley Damore

Autodesk Inc. plans to release this month a developers' kit that enables Autodesk 3D Studio users to create special-effect routines that previously could only be done with high-end Silicon Graphics workstations.

The $250 product dramatically reduced the cost of producing special effects for one Hollywood motion picture designer. He has used effects generated from IPAS routines in two major productions scheduled for release next year.

"The IPAS kit offers a type of quality and amount of animation that many production companies couldn't afford to use earlier," the designer said. "We are also able to do effects such as melts on the PC that we are not able to do on SGI's workstations."

> **Autodesk's IPAS ToolKit creates such effects as melt, shatter, morph, deform, snow, rain, and fireworks.**

With Autodesk's IPAS ToolKit or third-party add-ons, a user has the ability to create such effects as melt, shatter, stretch, morph, deform, snow, rain, and fireworks, said the Sausalito, Calif.-based company.

The IPAS routines on a 486 system vs. a workstation could save a company $50,000 to $100,000.

The toolkit should also create a flurry of third-party products that enable users to buy more off-the-shelf special effects packages.

"The motion picture studio can now buy third-party packages and eliminate the need to write custom software," the designer said. "This saves days of work for a medium-sized project," he added.

"It allows multimedia developers to differentiate themselves from their competition or respond to a specific request of a customer," said Bob Bennett, senior product manager for Autodesk.

For more information, call (800) 879-4233, Ext. 945.

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In addition, we've created a special program for developers that will put you directly in touch with some of our senior product support people.

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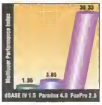
Since the beginning of time, people have been obsessed with reaching ever increasing rates of speed. So what else is new with Microsoft FoxPro 2.5?



Microsoft FoxPro version 2.5 is the fastest PC database management system available today.

Plenty. For starters, the new Microsoft® FoxPro® 2.5 for Windows™ has a rich and productive environment with an intuitive graphical interface. Which means it's never been easier for you to use and develop powerful Xbase applications.

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Like the Trace and Debug windows, Project Manager, Menu Builder, Screen Builder and Report Writer.

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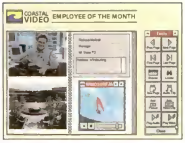
And now with the arrival of FoxPro 2.5 for both the Windows and MS-DOS® operating systems (and soon for the Macintosh® and UNIX®), you can have the most powerful and most graphical Xbase applications across all major PC platforms. And if you are thinking about migrating to Windows in the future, have no fear. Because Microsoft FoxPro for Windows will easily run all your FoxPro 2.0 files.



FoxPro 2.5 takes advantage of Windows and allows you to create dazzling applications.

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For additional information, just zip on over to your nearest reseller, or call us at (800) 882-2000, Dept. JG5. We'll be more than happy to tell you all the ways Microsoft FoxPro 2.5 for Windows can get your adrenaline pumping.

Microsoft

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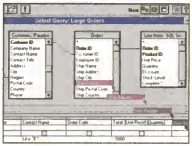

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Crystal Reports is upgraded

By Scott Mace

The latest release of Crystal Computer Services Inc.'s Crystal Reports, a Windows report writer, is now compatible with a wide variety of databases.

In addition to the compatibility with dBase, Paradox, and Btrieve databases provided in earlier versions, Crystal Reports 2.0 adds accessibility to FoxPro 2.0 indexes.

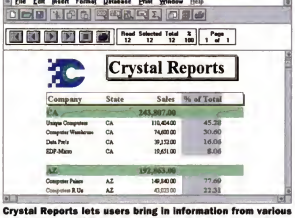
The Crystal Reports 2.0 SQL Edition links users with SQL data sources, including SQL Server, Oracle, and SQLBase, without requiring prior knowledge of SQL.

One early user praised Crystal Reports 2.0's speed. "We've looked at R&R for Windows and CA-RET, and [Crystal Reports 2.0] is just a lot faster," said Tim Landgrave, director of MIS at Thornton Oil Corp., in Louisville, Ky.

The formatting capability seems to be more advanced in Crystal Reports, and its support for Btrieve was also appealing, Landgrave added.

User interface improvements in Crystal Reports 2.0 include the addition of a ruler and status bar as well as time-saving ways to show, add, move, and format fields and sections, said company officials.

Full bit-map graphics can now be added to reports, as well as borders and shadows around fields. A line-drawing capability lets users create lines, boxes, or tables.



Crystal Reports lets users bring in information from various databases and add to the report.

Objects created in Object Linking and Embedding, such as WordArt objects, can also be added to reports.

Crystal Reports is currently being bundled with development tools, including Object-Vision Professional 2.1 and Paradox Engine 3.0 from Borland International Inc.

Extensions to the Crystal Reports reporting engine Dynamic Link Libraries let developers write their own functions and add them to the product's formula language.

The price of Crystal Reports 2.0 is $195 for a single-user version. The Crystal Reports LANpak, which includes up to five users, costs $395 and is compatible with any network that supports Windows.

The Crystal Reports SQL Edition is $395. An unlimited run-time version is available to developers royalty free.

Crystal Computer, in Vancouver, British Columbia, Canada, can be reached at (604) 681-3435.

Micrografx to hire outside after brother's resignation

By Shawn Willett and Jeanette Borzo

Micrografx Inc. is looking outside the company for a replacement for ousted president and chief operating officer George Grayson, said chairman Paul Grayson.

George, who is Paul's brother, was forced out of the Richardson, Texas-based firm by the board of directors three weeks ago, in part because of lower than expected earnings in the last two quarters, according to company officials.

"We definitely won't make a decision before three months," said Paul Grayson.

The company had hired the same executive search firm that pulled John Sculley away from PepsiCo Inc. to head Apple Computer Co., Paul Grayson said.

"We want to take our time and make the right decision," said Paul Grayson, who has taken over day-to-day operation of the company.

In general, analysts believed that the company's new management was sure to be an improvement over a situation with two feuding brothers.

"George Grayson had some unique strengths," said Jeff Henning, an analyst at BIS Strategic Decisions, in Norwell, Mass. "He was a programmer and had a lot of respect from the technical staff. They need to pick someone who balances out the marketing and technical side of the company," he added.

Micrografx had lower than expected earnings in the quarter ending in September, but it still saw healthy revenue growth.

The company will need fresh management to deal with a new marketing push from its chief competitor, Corel Corp.

Last week Corel dropped its competitive upgrade price for CorelDraw to $199, or $169 for the CD ROM version.

Corel's upgrade offer lets users of 12 Windows- and DOS-based photo editing, illustration, and presentation packages upgrade to the $595 Windows-based CorelDraw. (See "CorelDraw upgrade is an all-in-one offer," August 31, page 16.)

"It's another aggressive move on Corel's part aimed to grow market share, strengthen our lead in the drawing category, and make further inroads in the business charting, presentation, and image editing category," said company media relations manager Fiona Rochester.

SunPro unveils workgroup development tool

Price, ease of use touted as Sparc-based TeamWare's strength

By Cate Corcoran

SunPro, the tools subsidiary of Sun Microsystems Inc., announced a software-development management program for workgroups that it says is less expensive and easier to learn than existing systems.

TeamWare will ship in January for Sparc machines running Solaris. A Solaris-on-Intel version will debut in mid-1993, SunPro said.

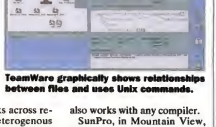
The program will list for $995. Volume discounts are available, including $600 per workstation when bought in quantities of 100.

TeamWare allows two or more engineers to work on the same code simultaneously. When they have finished, the program merges the projects when one is dragged and dropped on top of the other.

The program automatically merges files by comparing them and updating any changes into a new file. If TeamWare finds overlapping changes, it brings up three windows — two showing the conflicting code and one showing the final file — so the user can choose the preferred code or write new code.

TeamWare keeps copies of the various versions of each file and assigns them numbers. Users can see how files are related by calling up graphical images resembling family trees.

TeamWare is easy to use because it is graphical and uses the same Unix commands and drag-and-drop metaphor as other programs, SunPro said.



TeamWare graphically shows relationships between files and uses Unix commands.

TeamWare works across remote sites and heterogenous networks with Sun's NFS and X Windows system utilities. It also works with any compiler.

SunPro, in Mountain View, Calif., can be reached at (415) 960-1300.

Outside In upgrade allows users to transfer DOS-based files to Windows applications

By Ed Scannell

Users looking to transfer DOS-based files to Windows applications got some help with the shipment of Systems Compatibility Corp.'s Outside In for Windows.

Version 2.0 of the data import utility has added support for graphics and compressed files, some essential file management features, and the ability to attach the program to various Windows electronic mail programs.

Its graphic viewers let users view and print all or part of any size file. Users can also copy graphics to the clipboard.

Outside In has been modified to make it easy for users to view, use, and reuse mail attachments while working with Windows-based E-mail programs. Users can display a formatted view of the file complete with fonts, margins, and columns.

The new file management features include copy, move, rename, and delete commands. Version 2.0 can also be integrated with the file manager in Windows 3.1 and Windows for Workgroups.

One of the program's real strengths, according to company officials, is providing an easier way to bring together data files from different applications and OSes. It also combines database, spreadsheet, and graphics information regardless of where the files were created.

Outside In, which also comes in DOS and networking versions, can be used as a standalone program or can be fully integrated with well-known desktop applications for Windows such as Microsoft Word, WordPerfect for Windows, and the Norton Desktop.

Users need Windows 3.0 or 3.1 and DOS 3.1 or later to run the program. The network version works with all popular PC-based local area networks.

Version 2.0 costs $89. Registered users of Version 1.0 can get the upgrade free.

Systems Compatibility, in Chicago, can be reached at (312) 329-0700.

XBase report writer praised for ease of use

By Jim Hammett

A high-end report writer from Computer Associates International Inc. that lets users create reports from XBase databases and ASCII files won praise from users for its compatibility with other applications and for its ease of use.

Computer Associates plans to release CA-RET/XBase, a Windows-based report writer for CA-Clipper, XBase databases, and ASCII file users on Tuesday. Users of R&R Report Writer for XBase can upgrade to CA-RET for $79, a savings of more than $200 over the suggested retail price.

"CA-RET/XBase is much easier to use than R&R Report Writer for XBase," said Larry L. Fox, senior programmer/analyst with Browning-Ferris Industries, in Houston.

CA-RET users can point and click to add text fields.

With CA-RET/XBase, users can point and click to add text and data fields, graphic bars, images, headers, and footers from the report writer's toolbar.

"I like the way CA-RET interacts with my other applications," said Alan Ashendorf, president of Transformations Inc., in Nashville, Tenn. "With one of the predefined report templates in CA-RET, I can add other elements to produce a finished report."

CA-RET/XBase allows users to adjust column widths using a word processor-style ruler and has drag-and-drop capabilities to change the ordering of report columns. Users can also select display options to maximize screen usage. Users have complete control over the font, size, color, style, and position of all report elements, including database fields, computed fields, and text.

The company said it wants to make the report writer as easy to use as a word processor or spreadsheet.

CA-RET/XBase requires 2 megabytes of RAM, but 4 megabytes is recommended. The $295 suggested retail price includes an unlimited-use runtime license.

Computer Associates, in Islandia, N.Y., can be reached at (800) 225-5224.

Masm 6.1 builds fast Windows apps

Microsoft's updated macro assembler can develop for Windows NT

By Doug Barney

Microsoft Corp. is shipping next month a macro assembler, Masm 6.1, that allows users to develop high-performance applications for Windows and the unreleased Windows NT.

Assembler, once used to create entire high-performance applications, has been largely replaced by higher level languages, such as C and C++, said Dilip Wagle, product manager for Microsoft's Masm and Fortran. C is more portable and easier to work with than assembler he said.

Developers still use assembler for a variety of tasks, Wagle said. Device drivers, for example, are still generally written all in assembler. Many developers use assembler to optimize code written in higher level languages.

"Once you have the functions, you run a profile to find out where the program spends most of its time. You isolate that and write those functions out in assembly language," Wagle explained. More experienced programmers dispense with the profile and rewrite functions that they know to be slow.

Finally, an increasing number of users are developing Windows Dynamic Link Libraries in assembler, which are called by graphical front ends. That way, "the back end can be really fast," Wagle said.

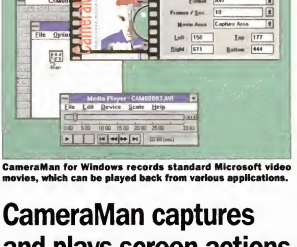
Masm 6.1 now includes documentation for developing Windows applications. The documentation has been taken from the Microsoft Windows Software Development Kit, Wagle said. The package can also be used to develop Windows NT applications on a DOS machine.

Microsoft cannot guarantee the applications will run on NT, because NT is still in beta testing and subject to change. However, any NT application developed with Masm 6.1 can be reassembled with the latest version of Masm and will then run under NT, Wagle said.

The package also includes instruction timings that will list the execution time for each instruction. Slow instructions can be rewritten or eliminated. It also comes with high-level commands, which are standard fare in higher level languages. A high-level command, such as "if else" or "repeat until," can replace many assember instructions with a single command.

Masm 6.1 will sell for $199. It requires an 80386 or later processor, Microsoft DOS 3.3 or later, 4 megabytes of RAM, and 10 megabytes of hard drive space.

Microsoft, based in Redmond, Wash., can be reached at (206) 882-8080.



CameraMan for Windows records standard Microsoft video movies, which can be played back from various applications.

CameraMan captures and plays screen actions

First to use Video for Windows

By Kelley Damore

Vision Software International recently unveiled and will ship this month a screen movie utility for capture and play back of a Windows screen.

Users say the utility is especially helpful in creating training programs or on-line help systems in which action on a computer screen must be shown.

CameraMan for Windows is the first program to implement Microsoft Corp.'s Video for Windows, converting screen actions to standard Microsoft AVI file formats, company officials said.

"I can open up [the] movie player, record all my movements on the screen, and create WATCH.ME instructional files — similar to READ.ME files," said Andrew Block, senior data systems specialist for Lockheed Missile and Space Co., based in Sunnyvale, Calif.

The converted files are smaller than video capture files because the program only captures the difference between frames, the company said.

"This is the full-motion equivalent to screen capture," Block added.

The program requires a 386 multimedia-capable PC with Windows 3.1. CameraMan for Windows will be shipping direct from Vision, dealers, and distributors for $149.

Vision Software of Santa Clara, Calif., can be reached at (408) 748-8411.

Microsoft releases to developers Device Driver Kit for Windows NT

Microsoft Corp. last week released its Device Driver Kit (DDK) for the Windows NT operating system, giving developers resources to create portable device drivers that allow their hardware to support the operating system.

The DDK supplements the Win32 Software Development Kit. The company said this was the first preliminary release of the DDK and includes source code that will build 50 driver binaries in categories such as network cards, video displays, keyboards, pointing devices, printers, SCSI hard drives, and CD ROM. Other categories include serial, tape, and multimedia devices; scanners; and real-time data acquisition devices.

A subset of Microsoft's hardware compatibility test suites is included. The DDK includes kernel debugger extensions, a kernel debugger sample, performance tools and symbols, and more than 2,000 pages of documentation.

The DDK is priced at $399 with hard-copy documentation, or $69 with electronic documentation in PostScrip and Windows Write format. (800) 227-4679, Ext. 11771.

— Jim Hammett

PAINTER / from page 13

Painter 2.0 is about to make a splash

any trouble at all," said beta tester Bill Niffenegger, president of Niffenegger Studios, in Chicago. "It's similar to what takes me days in a rendering program, and I can do it in Painter in 5 minutes."

A magic wand makes it easier to construct friskets or masks of irregularly shaped images. Imported photos can be sharpened, softened, motion-blurred, distorted, or flipped.

A new blob tool captures an image from a selected area and then drops that image in different sized blobs onto another area. A new brush lets users easily change images into something akin to a Cubist painting.

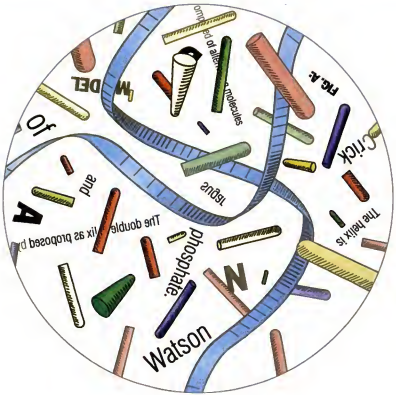
Painter 2.0 lets users automatically adjust colors in an image so it contains only printable colors, NTSC (National Television Standards Committee), or PAL (Phase Alternate Line) colors. Images also can be saved in EPS, CMYK, and DCS (Desktop Color Separations) files.

"I especially like the ability to enforce printable colors without having to go into some sort of CMYK conversion table," Niffenegger said. "I've run jobs directly out from 2.0, and I wasn't able to do that [with previous versions of Painter].

"I love that Painter is integratable with other programs and that I can bring in filters from third parties," Niffenegger added. "They really did their homework on this one."

Anyone who bought Painter after November 1 can upgrade free to Painter 2.0. Other users can upgrade to the new Mac and Windows versions for $79.

Fractal, in Aptos, Calif., can be reached at (408) 688-8800.



[*click*]

FIG. A: DNA MODEL
The double helix as proposed by Watson and Crick. The helix is composed of alternating molecules of sugar and phosphate.

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alculations, summaries, dates, times, raphics, even photographs and sounds.

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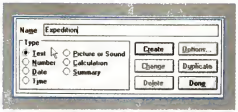

Defining fields is as easy as deciding what kind of information you want them to contain, giving them a name and then simply clicking a mouse.

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WordStar revamps product support with Fax on Demand service

By Jeanette Borzo

WordStar International has improved the way users get support for out-of-warranty products and is also letting users get product assistance through their fax machines.

The new Fax on Demand service prompts users over the phone to determine what information the service will fax to the users.

Information available through the service includes technical notes, tips and tricks, answers to specific technical problems, diagnostic information, product brochures, and new product announcements.

Users can dial the service with their fax machine telephone to have information sent automatically to the fax machine when they hang up, or they can dial from a regular phone and specify the fax number where they want information sent.

Users can reach WordStar's Fax on Demand service by calling (812) 335-0567.

In the company's other new customer support option, support is now available on products that are no longer under warranty through a new 900 number that charges $2 per minute, with the first minute free. Previously, users were charged a minimum of $20 for 10 minutes of service for support on out-of-warranty products.

Charges for the 900 number are billed directly to a caller's phone bill.

Out-of-warranty products supported include WordStar for DOS 3.3 through 5.5 and Versions 1.0 through 3.0 of WordStar 2000, Easy, and Easy Extra.

Users can call the service at (900) 555-STAR.

The Novato, Calif.-based WordStar continues to provide free weekday technical support over the phone from 7 a.m. to 4 p.m., Pacific time, with different support lines for different products.

To determine the correct line, users can call WordStar at (415) 382-8000.

Users also can use a modem to dial into WordStar's electronic bulletin board service at (812) 334-0208, or they can download WordStar information from the WordStar forum on CompuServe.

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4D Server runs multiple tasks simultaneously

Macintosh database developers will be able to work collaboratively on their application designs thanks to a new server that shipped this month from the makers of Fourth Dimension.

The new 4D Server, announced last year, speeds Fourth Dimension database performance by dividing tasks between client and server. The server's multitasking also speeds processing by running more than one Fourth Dimension process simultaneously.

ACI has applied its multiuser record and file locking technology to its database development system. More than one developer can see all fields, forms, buttons, and other aspects of the application design, but only one developer can change an item at a time, Vernon said.

Another new feature called Path Documents allows users to quickly launch Fourth Dimension applications without knowing the location of the 4D server where the data resides.

Also, the company recently changed its name to ACI from ACIUS, which stood for ACI in the U.S., to keep the American company's name in line with its French parent.

"We're doing a lot of business with customers with overseas offices," said Mark Vernon, vice president of sales and marketing. "They didn't realize that ACI in Europe is selling the same products as ACIUS is selling here."

Both the U.S. and European companies adopted a new corporate logo with the U.S. name change, Vernon said.

Pricing for the database server begins at $1,495 for three users. An unlimited license costs $15,000.

ACI, in Cupertino, Calif., can be reached at (408) 252-4444.

— *Yvonne Lee*

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Window Manager / Brian Livingston

You want it, we've got it — more Windows macro function keys

In my columns of November 23 and 30, I revealed a way to turn 16 of the little-used keys on your numeric keypad into extra function keys that can launch almost any Windows macro.

I've received several messages from readers who have taken advantage of this method. They are now punching away at their keypad keys to insert lengthy phrases, run applications, and so on.

But *InfoWorld* readers always want more. It seems that even the 16 keypad keys aren't enough. Readers also want to know how to redefine other keys that aren't available through the Windows Recorder, such as the period, comma, and slash.

It's very unlikely, of course, that you would ever want to change the meaning of your period key (unless you write only run-on sentences). But it can be very useful to place a macro on Ctrl-Period, which is easy to press, instead of a hand-twister like Ctrl-Shift-P.

Another reason to redefine punctuation keys is to produce accented letters. Carl Herup, who got me started on this topic, originally used this method to fix Microsoft's own accented keyboard driver for Windows.

Herup commonly types documents that include accented letters in various languages. For this reason, he used the Control Panel's International dialog box to switch his keyboard layout from "US" to "US-International."

This layout, which is not documented in the Windows manual, lets you type accented characters. When you press the tilde, caret, or a quote mark key followed by the relevant letter key, you get the accented version of that letter.

Herup didn't like redefining his quote mark keys this way. So he used the Recorder patch described in my previous columns to move the accented "dead keys" to other locations that he preferred.

There's an easier way. A firm in Québec produces a keyboard driver for Windows that accesses all accented letters, as French-Canadian typewriters do. The cost is only $19.95 plus tax from PM Informatique at (514) 446-1775.

Other keys you might find handy to redefine include the useless Pause key and the keypad 5 (a blank key when your num-lock light is off).

The table below shows every hexadecimal key code I know of that can be patched into Recorder using a hex editor, such as the ones I mentioned on November 23. Don't try this without reading that column.

One reader asked how to redefine the keypad Enter key. Alas, that key emits the same code as the main keyboard Enter key, as far as I can determine. So I make use of the keypad Enter without redefining it. After I've clicked some options in a dialog box with my mouse, I press the keypad Enter key with my right thumb. That way, I don't have to move my mouse over to the OK button. (Every shortcut helps.)

Some readers have also asked what the keypad comma (N.) key was. Not all keyboards have a keypad comma. If yours doesn't have one, you can't produce this keystroke, of course.

KEY	CODE	KEY	CODE
5 (num-lock off)	0C	N2	62
Pause	13	N3	63
Semicolon	BA	N4	64
Equal sign	BB	N5	65
Comma	BC	N6	66
Hyphen	BD	N7	67
Period	BE	N8	68
Slash	BF	N9	69
Backquote	C0	N*	6A
Left bracket	DB	N+	6B
Backslash	DC	N,	6C
Right bracket	DD	N-	6D
Apostrophe	DE	N.	6E
N0	60	N/	6F
N1	61		

Brian Livingston is the author of Windows 3.1 Secrets *(IDG Books). Send tips to: CompuServe 70053,2035; MCI 420-0583; Internet 420-0583@mcimail.com; or fax: (206) 282-1248.*

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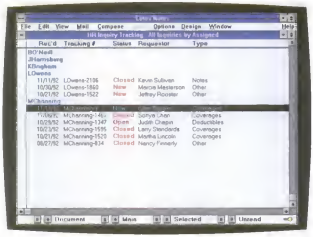
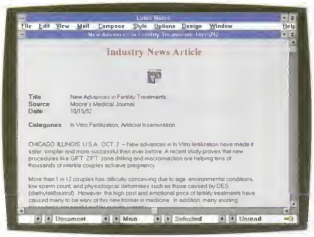
1. This is Mike's Notes desktop. Each icon represents a different database. In the course of the day, he generally uses them all. To start the day, Mike decides to check if any new benefits questions have been forwarded his way. He double-clicks on the CALL DISPATCH database icon.

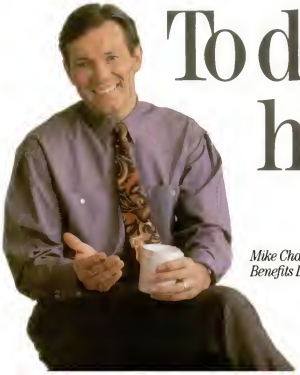


2. Well, there's one that hasn't been read. Ellen Burger has a question about her coverage. Ellen called the company's BENEFITS HOTLINE. The operator entered her query into Notes and it was automatically routed to Mike. Mike double-clicks to find out what the problem is.



5. HR Industry News He simply double-clicks INDUSTRY NEWS, and searches two categories: In vitro fertilization and artificial insemination. First up is a recent story from Moore's Medical Journal. Since the article includes authoritative information, he decides to forward it to Ellen.

6. HR Industry News Mike quickly composes a note, attaches the article and sends it directly to Ellen. That done, he gets himself a cup of coffee.



Mike Channing
Benefits Liaison

To demonstrate th
had to make an

According to critics, including our competition, Lotus Notes™ is one of the most exciting software products you can buy. We'd like to show you why.

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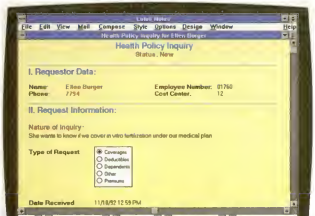
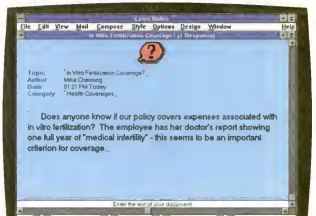
Let's watch how Mike Channing uses it. As a tracking tool for customer service. As a conferencing system for collaborative problem solving. And as a library for policies, documentation or news.



3. Up comes the inquiry screen. Ellen wants to know if the company covers in vitro fertilization. Mike, being new, is stumped. He calls his supervisor on the phone for the answer. He's not in yet. Instead of waiting, Mike decides to post the question on the GROUP DISCUSSION database, thinking that someone else might know the answer and respond more quickly.



4. He double-clicks the GROUP DISCUSSION icon. Once in GROUP DISCUSSION, he poses the question to his workgroup. Eager to help, Mike then decides to check out the INDUSTRY NEWS database for any background information that might be useful to Ellen.

7. When he gets back to his desk, Mike checks back into the GROUP DISCUSSION database for responses. Not only has Barry Kepler responded with the answer, Barry actually leads Mike to the relevant section of the corporate policy manual by creating a direct link to the document.

8. Mike clicks the DIRECT DOC LINK icon. Up comes the relevant section of the policy. Mike jots a quick message and forwards both to Ellen. Job done, in less than 10 minutes, by easily tapping into expertise both inside and outside the company.

e power of Notes, we example of Mike.

Watch how Notes organizes information so it's easy for Mike to get the answers he needs. How effortlessly he taps his workgroup's knowledge. How quickly he accesses conventional references. Now you can see why people who have Notes build their work around it. And why the companies that have installed Notes have seen as much as a 400% return on their investment.*

Now, consider that any business can afford it. A Notes Group Pack™ will have ten people working together for under $5000. It includes 10 of our most popular Notes applications including SALES MANAGEMENT, LEAD GENERATION and POLICY HANDBOOK, as well as complete installation and usage documents. For information call **1-800-828-7086, ext. 7251,** or your local Notes VAR.

Lotus Notes

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The End

Actual facsimile generated from a Silentwriter Model 95fx.

Our goal at NEC is the complete integration of computers and communications. The Silentwriter Model 95fx is just one of many innovative products that help us to realize this goal. For example, we not only developed the first notebook computer with a built-in phone and fax, we make satellite dishes capable of sending data worldwide.

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NEWS / HARDWARE

PIPELINE

PRICE CUTS

Toshiba continues to cut portable prices

Toshiba America Information Systems Inc. has cut the price of its low-end Satellite T1800 and T1850 portables by 10 to 17 percent. The systems have no suggested street price, but Toshiba expects the typical street price for the systems to range from $1,300 to $2,050. At the high end, Toshiba reduced prices by 6 to 8 percent on selected models of the T6400 transportable line. Those prices now range from $4,599 to $7,499. (800) 334-3445.

Competitor **Zenith Data Systems** also cut the list price of its notebook systems, with those cuts ranging from 3.5 to 21.1 percent. Prices for the ZDS-600nl, Z-Sport, and Z-Note series range from $1,399 to $3,499. (800) 553-0331.

Upgrade modules for **Advanced Logic Research**'s systems are now 21 to 56 percent cheaper. Upgrades cost from $299 to $2,495 depending on the CPU purchased. (714) 581-6770.

ANNOUNCED

ShareVision gains $4.2 million in funds

An additional $4.2 million in venture capital funds will help launch ShareVision's Desktop Visual Communications product line. The Macintosh-based product brings video and audio communications to the desktop. (408) 428-0330.

Electronics for Imaging Inc. is shipping its $895 Fiery Print Calibrator, which optimizes the color output for Canon CLC300 and CLC500, Kodak ColorEdge 1525 and 1550, Xerox 5775, and Agfa XC305 color copiers. (415) 286-8600.

A 16-MHz 68000-based accelerator from **Brainstorm Products** is designed to increase the bus performance of the Macintosh SE while offering users a faster processor. The Brainstorm Accelerator lists for $289. (415) 964-2131.

SHIPPING

Envisio adds color to Mac, PC portables

An active matrix color display that supports any color-capable Macintosh, the PowerBook 160 and 180, and VGA-compatible PCs from Envisio lists for $5,495. (612) 339-1008.

Continued on page 38

Tektronix lowers entry price for color

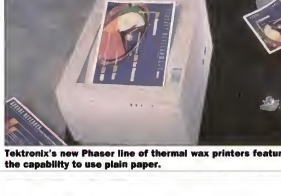
Thermal wax coating technology lets Phaser line print on plain paper

BY TORSTEN BUSSE

Tektronix's new thermal wax printers offer affordable color printing for business users in shared workgroup environments.

The Phaser 200i and 200e have fewer moving parts and employ a new paper coating technique.

The printers, which will ship in early January, print at a resolution of 300 dots per inch and a speed of 2 pages per minute (ppm). They offer support for Adobe PostScript Level 2 and HP-GL page description languages. Parallel, serial, and AppleTalk interfaces are standard.



Tektronix's new Phaser line of thermal wax printers features the capability to use plain paper.

Priced at $3,695, the 200e offers 17 Adobe fonts and optional TCP/IP and DECnet interfaces. The $5,995 Phaser 200i comes with 39 fonts, a SCSI port, and optional EtherTalk, DECnet, and TCP/IP interfaces. (See "Tektronix aims fast color printers at workgroups," November 3, page 3.)

Because peaks and valleys in the paper could cause the ink to "skip" across the page, previous generations of thermal wax printers had to use specially coated paper that was smooth enough to accept the wax, which is transferred from the ribbons.

Tektronix's patented ColorCoat technology, however, allows the Phaser 200 printers to print on plain paper.

"Before the first color pass, a custom transfer ribbon applies a primer coat to the area of the paper that will be printed," said A.J. Rogers, strategic marketing manager. "The primer bridges the fibers of the paper, producing vibrant color on common laser paper," he said.

The engine used in the printers was built by Sharp Electronics Corp. and features a rubber-coated drum that also functions as a platen. This eliminates the need for additional rollers or platens, which reduces the price of the engine and thus the entire unit, according to Rogers.

Although the low-end model is price-competitive with color ink-jet printers, it produces sharper colors than most color ink-jet printers, Rogers said.

"The Phaser 200 is not an ideal printer for the graphic artist, but a great machine for the general business user and in-house production departments," Rogers said.

At 2 ppm, the Phaser printers are also faster than most color ink-jet printers, which need several minutes to produce one full color page.

An optional $495 dual input paper tray is also available.

Tektronix, in Wilsonville, Ore., can be reached at (800) 835-6100.

Sun Sparcstation 10 line delayed six months

BY CATE CORCORAN

Sun Microsystems Computer Corp. admitted last week that ship dates on its high-end SparcStation 10 line have slipped by two quarters.

The Model 30, originally the low end of the line, is now shipping in volume. But yield problems for processors running at 40 MHz or faster have delayed the other models.

Also available now is the Model 20, an entry-level system that Sun added to the line late last month.

"We are a little behind schedule with the Model 41 and above," an SMCC representative said. "We had problems with the chips.

"There are always a lot of growing pains with a new design, but demand for the product is very high," she said. "People like the upgradable, modular approach."

SMCC blamed the problem on Sun's design, not Texas Instruments Inc., which is making the chips. Sun redesigned the mask, which solved the yield problem, she said.

The Model 41 is now ramping up, with volume production expected in March 1993. It was originally expected to ship in the third quarter of this year.

Models 52 and 54 are expected in the second quarter of 1993, said the representative. The Model 52 was to ship in the fourth quarter, and the Model 54 was on track for the first quarter of 1993.

The Model 20 was first available in September as an unannounced promotional model. It was added to the line because Sun had a lot of 33-MHz SuperSparc chips available, said the representative.

The Model 20 is rated at 41 SPECint92 and 44 SPECfp92. The standard configuration includes 32 megabytes of RAM (expandable to 512 megabytes), a 424-megabyte hard disk, and GX graphics.

A 19-inch gray-scale version lists for $16,495, a 16-inch color model costs $17,495, and a 19-inch color model is available for $18,495.

SMCC, in Mountain View, Calif., can be reached at (800) 821-4643.

SuperMac readies large monitors and HDTV board

BY TOM QUINLAN

On January 6, 1993, SuperMac Technologies will introduce a new family of large-screen monitors along with the company's first entry into the high-definition television market.

Part of its MacWorld San Francisco product introductions, SuperMac's SmartTouch line will include a 17-inch and a 20-inch monitor with touch-screen capabilities built in, said Christopher Kryzan, director of product marketing for SuperMac.

SmartTouch line has built-in touch-screen capabilities.

When combined with SuperMac's DigitalFilm Playback board, the touch-screen monitors will be ideal for kiosk-type applications.

"Right at the moment we don't see a lot of application for these systems on the desktop," Kryzan commented. "But the high-end technology of today is the mainstream product of tomorrow," Kryzan said.

The monitors have not been officially priced yet, but Kryzan said he expects them to be priced in the $3,000 to $5,000 range. The DigitalFilm Playback board will cost about $3,000.

At the same time, SuperMac will also be introducing its $9,999 Thunder-2 HDTV board, which is expected to find its first niche in the high-end prepress market.

The board will support HDTV monitors' higher resolution of 1,930 by 1,035, Kryzan said, giving users more than 5 megabytes of information per screen.

SuperMac expects that the boards will require monitors of approximately 28 inches to 30 inches.

SuperMac Technologies, which is headquartered in Sunnyvale, Calif., can be reached at (408) 245-2202.

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‡*Models 425 SX and 433 DX are shown with the PS/ValuePoint 6314 Color Monitor.*

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Color Display

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Graphics accelerator speeds AVI playback

Also supports Intel local bus spec

By Cate Corcoran

ATI Technologies Inc. announced the first Windows accelerator chip designed to support Intel's PCI local bus specification. The ATI chip also accelerates AVI video play back under Video for Windows.

The mach32 AX is the next generation in ATI's line of graphics chips.

Like all graphics accelerators, the AX speeds graphics applications by offloading graphics operations from the CPU.

The AX gains additional speed by attaching to the local bus — either via a VESA-style connector or in a PCI configuration — thus enabling it to communicate with the CPU at near-CPU speeds.

The AX has a sustained burst transfer rate of 133 megabytes per second using the PCI architecture, according to ATI.

New features include the capability to display 16.7 million colors in resolutions as high as 1,280 by 1,024. The chip supports displays with pixel clocks as high as 135 MHz.

The AX is compatible with Microsoft's Video for Windows, which is expected to be announced at fall Comdex. The AX will increase the frame rate of Video for Windows, which is similar to QuickTime for the Macintosh.

Other features include a 64-bit display interface to memory, which improves performance by sending data in bigger chunks. The AX also has a linear frame buffer and a zero-wait-state VGA for better performance.

In addition to PCI and VESA local bus, the chip supports the EISA, ISA, and Micro Channel buses.

The chip will ship in January and sell for $75 each in quantities of 1,000.

ATI is located in Toronto and can be reached at (416) 756-0718.

Multimedia portables debut

Scenario 486 systems have color, sound, CD ROM

By Ed Scannell

Scenario Inc. has delivered a series of 486-based portable systems that sport a built-in CD ROM drive, a sound card, and an active matrix color display.

The MPC-compliant DynaVision series allows users to record and play back digital audio sound.

The systems, weighing 10.3 pounds, also feature a 15-pin MIDI port that allows connection to an external synthesizer.

The systems range from a 25-MHz 486SX to a 50-MHz 486DX2 processor and come with hard disks that can store between 80 and 200 megabytes of data. The systems' main memory consists of 2 megabytes of RAM, expandable to 8 megabytes, and comes with a high-density floppy drive, a 2,400- or 9,600-bit-per-second fax/modem, and an optional PCMCIA card.

The company provides an active matrix color display because most targeted users simply would not accept a CGA-quality display, said Thomas Rhinelander, Scenario marketing manager.

"Our users ask for more than 4 pixels per head when viewing a graphical CD ROM or multimedia application," Rhinelander said. "A low-quality CGA display is no longer acceptable."

Scenario's multimedia portable combines a 486 processor, CD ROM player, color, and sound in a 10-pound package.

The company offers users two internal displays: an active matrix color screen capable of supporting 256 colors, or a 64-gray-scale monochrome display.

The systems let users download information from the CD ROM drive and save it to either the built-in hard drive or export it through the internal fax or a printer.

Users giving presentations to a large audience can connect the system to a larger monitor, TV, or overhead VGA-compatible projector to run the presentation simultaneously with the internal display.

"Multimedia is no longer just about games and encyclopedias," said Michael Wadden, Scenario's sales manager. "[DynaVision's] voice annotation feature now lets users integrate audio into word processors and spreadsheets."

Depending on the processor, storage and display configurations, systems in the series range in price from $2,995 to $6,995 and are available immediately.

Scenario, in Newton, Mass., can be reached at (617) 965-6458.

Product Spotlight

Scanner connects to notebooks

Nisca Inc.'s Niscan Page is a battery-powered, 400-dot-per-inch, full-page scanner designed for the traveling notebook user.

Requiring no interface board, the 8-bit gray-scale scanner connects to the computer via the printer port. The battery has enough life for 20 full-page scans.

Bundled with the $799 scanner is the company's image editing, optical character recognition, and fax-on-the-fly software, called Word&Pictures. The fax-on-the-fly capability allows users to fax the image that is being scanned during the scanning process, cutting down on the amount of memory users need to handle those tasks. The Niscan Page is also TWAIN compatible, allowing for direct import of scanned images into applications.

Nisca is based in Carrollton, Texas, and can be reached at (214) 242-9696.

Rosetta offers two laser printers for network use

By Torsten Busse

Rosetta Technologies Corp. is now shipping two printers designed for network use.

The $6,995 RT3120 is a 20-page-per-minute (ppm) laser printer with a resolution of 300 by 300 dots per inch.

The $7,995 RT3220 offers the same resolution but has an engine speed of 12 ppm and offers dual printing.

The printers are three times as fast as Hewlett-Packard Co.'s HP IIISi, according to Rosetta Technologies.

Both models ship with 4 megabytes of memory and are upgradable to a maximum of 28 megabytes.

Powered by Intel's 25-MHz i960CA RISC processor, the laser printers are compatible with PostScript and HP LaserJet II and III and support HP's PCL5 and HP-GL2 page-description languages.

PostScript compatibility is provided by Peerless Systems Corp.'s multitasking operating system Peerless Page, which offers 35 TrueType and 35 standard PostScript fonts.

Connectivity options include Ethernet, TCP/IP, and Novell NetWare. Centronics parallel, RS-232C, and RS-422 interfaces are also standard.

Two HP-compatible font cartridge slots are also provided.

The printers accept A4, letter-, and legal-size paper; their maximum paper capacity is 1,000 sheets.

Rosetta is based in Tampa, Fla., and can be reached at (813) 623-6205.

Dell tailors its consulting and VAR services to vertical markets

By Kelley Damore

To gain a bigger share of the vertical marketplace, Dell Computer Corp. announced a set of new distribution support programs.

Although Dell is known as the king of direct marketers, vertical markets account for a quarter of a billion dollars of revenue, said Mindy Morley, corporate manager of advanced channel and vertical marketing for Dell.

Dell wants to achieve the same success in this market by consulting for customized needs in specific industries.

The Professional Services Capabilities unit programs will expand Dell's relationship with systems integrators, network integrators, and consultants; it will also pursue new partnerships with developers and resellers who provide products that complement Dell's systems.

The company plans to increase the number of systems integrators it supports from 40 to more than 100 in the next year, Morley said. It also plans to expand its supported network integrators sixfold, to 300 employees.

"Users are getting more experienced and demanding more," Morley said. "These programs offer more to a user than just the speeds and feeds. They offer training, service, and consulting."

To lure VARs and systems integrators, Dell is offering to participants in its DellVAR and System Integration Partners programs support services such as financing options, 60-day free inventory financing, multivendor leasing, asset recovery, and accounts receivable financing.

Dell is also enhancing its technical support to its partners, including next-day delivery of parts, a new bulletin board for posting service advisories, and service documentation.

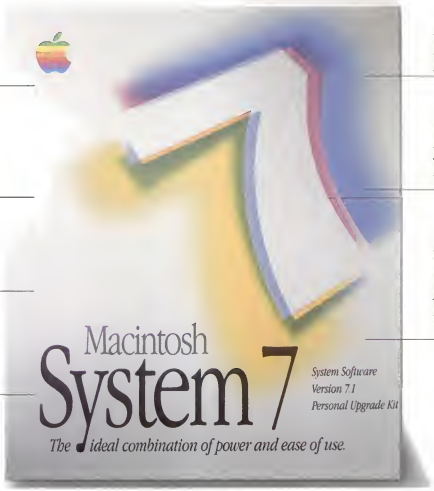
Microsoft, Lotus, Claris, Aldus, Adobe and WordPerfect have all taken advantage of System 7. Shouldn't you?

Software Publishers Association named System 7 "a Best New Business Software Product of the Year. MacUser gave it its Editors' Choice Award. Byte, its Award of Excellence.

The "Before You Install" disk confirms the compatibility of your software (including INITS). Then, simply click the mouse to install System 7. Any questions? Now one year's toll-free phone assistance is included.

Developers have shipped thousands of applications that take advantage of System 7. Microsoft, Lotus, Claris, Aldus, Adobe and many more.

System 7 works on all Macintosh® computers. To run multiple programs, four megabytes of memory is recommended. Two megabytes and a hard disk are required.



Macintosh PC Exchange, At Ease®, Apple Font Pack and QuickTime™ are just a few of the software utilities that take advantage of System 7.

Macworld says, "The new Finder...is worth the cost alone." System 7 improves the way you organize, view and work with information. Built-in file sharing lets you share files over a network, simply and easily.

If you're already using System 7, you'll want to take advantage of all the latest refinements in System 7.1. Refinements like a Fonts folder that lets you organize all your fonts in a central folder. And the new QuickTime 1.5 extension. If you'd like to purchase an update kit, call Apple directly at **1-800-769-2775**

Macintosh System 7.1 If you haven't upgraded, you're not getting the most out of your favorite software programs. New features like an improved Finder™ and 21 TrueType™ fonts will help you do your work quicker and easier. If the four million people who are already on board aren't enough to convince you to upgrade, here's a fact that might. This is System 7.1. The most refined system software ever from Apple. The power to be your best.™

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Outbound pulls out of Mac portable business

Price cuts by Apple, popularity of PowerBooks were important factors

By Yvonne Lee

People who want a notebook that runs the Macintosh operating system will now have no alternative to Apple Computer Inc., as clone-maker Outbound Systems stopped manufacturing last week.

Outbound cited declining margins and competition from offshore computer manufacturers for its decision. Apple's success with the PowerBook also contributed to Outbound's demise.

"I would say that the PowerBook has obliterated the need for Outbound, and the price reductions have made [PowerBooks] competitive," said Janet Cole, industry analyst at Dataquest, in San Jose, Calif.

The Boulder, Colo.-based company produced a Mac notebook three months before Apple introduced the PowerBooks, and shipped a 9-pound notebook kit when Apple was shipping its 15-pound Portable.

Outbound is negotiating with two service companies to provide customer service and technical support for registered Outbound notebook owners, according to president and CEO Douglas Swartz. The service company might hire Outbound's customer service and support representatives to maintain a continuous level of support, Swartz said.

The company is also seeking to sell to another company its MicroPC line of small form factor DOS-compatible computers introduced last November. The 486-based systems incorporate sound and networking into an 11¾-by-2.7-by-4.8-inch brick.

Compaq expands distribution

Forays into mail order despite a backlog of orders

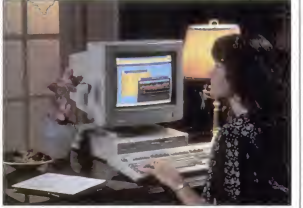
By Tom Quinlan

Compaq Computer Corp. continues to expand its distribution network even as the backlog for its higher power systems promises to drag on into 1993.

With the authorization of Granite Computer Products Inc., Insight Distribution Network Inc., PC Connection, PCs Compleat, and USA/Flex, Compaq has finally gone mail order — at least for its ProLinea, Contura, and LTE Lite/25c products.

Those companies will be restricted at first to getting products that are in ample supply, said Gian Carlo Bissone, Compaq's senior vice president of sales and marketing. That includes 386-based ProLineas and the LTE Lite, he said, with other products being added to the direct response channel as Compaq increases production.

"We very much tried to avoid a situation where we were creating demand that we couldn't fill," Bissone said. The five direct response companies will only be advertising products that they can get, he added.



Compaq has expanded its distribution again, focusing initial offerings on models it has in stock, like 386-based ProLineas.

Although Bissone didn't rule out the possibility of Compaq at some point entering the mail-order and telephone sales channel itself, he did point out that Compaq's latest expansion of distribution was another attempt to reach home and professional users, rather than corporate users.

The expansion comes at a time when Compaq can declare its low-end strategy a runaway success. According to market research firm InfoCorp., Compaq now has 23 percent of the U.S. market for sales through dealers. Before the ProLinea line was unveiled in June, Compaq's share in those outlets was estimated to be between 4 and 7 percent.

Compaq, in Houston, can be reached at (800) 345-1518.

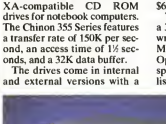
Chinon unveils line of CD ROMs for PC, Mac

By Kelley Damore

Chinon America Inc. recently debuted a line of CD ROM drives and magneto-optical rewritable drives for the PC and the Macintosh.

For users on the road, Chinon now offers a line of 3½-inch XA-compatible CD ROM drives for notebook computers. The Chinon 355 Series features a transfer rate of 150K per second, an access time of 1½ seconds, and a 32K data buffer.

The drives come in internal and external versions with a built-in headphone jack, power-save function, and front-loading caddy system. The SCSI-2 devices conform to the magneto-optical ISO standard.



Chinon has introduced a line of CD ROM and magneto-optical drives for Macs and PCs.

The external drives, called MOX100 and MOX300, are priced at $495. The internal versions, MOD100 and MOD-300, are $395.

For the multimedia market, Chinon unveiled Photo CD and XA-compatible CD ROM drives. The 535 Series offers an average access time of 280 milliseconds and a data transfer rate of 360K per second that drops to 150K per second for audio. An internal model is $650; an external model is $795.

The company also introduced a 3½-inch magneto-optical rewritable drive for the PC and Mac. The Series 100 Magneto-Optical Drives have a rotation speed of 1,800 rpm, a 60-millisecond average seek time, a data transfer rate of 384K per second, and a 64K buffer memory.

An internal version of the MO100 magneto-optical drive is $1,295. The external version is $1,495.

The Series 300 offers 3,000 rpm, a 45-millisecond average seek time, a data transfer rate of 625K per second, and a 256K data buffer memory. It is $1,495 for the internal version, $1,695 for the external.

All of the products will ship in the first quarter of 1993.

Chinon, in Torrance, Calif., can be reached at (800) 441-0222 or (310) 533-0274.

HP releases fast, upgradable servers

By Cate Corcoran

Following up on its November workstation announcement, Hewlett-Packard Co. last week took aim at Sun and IBM with a family of speedy, upgradable commercial servers.

The line ranges from low-end servers for small businesses and branch offices to mainframe-alternative systems for medium and large businesses, HP said.

"This line can be upgraded in any direction, and that's a real plus," said Nancy Stewart, an analyst with Dataquest, in San Jose, Calif.

All the servers use HP's PA-RISC processors and can be upgraded with a board or chassis swap at the customer's site.

By the middle of next year, HP will offer symmetrical multiprocessing upgrade packages that will boost performance at the high end by more than 75 percent, HP said.

The HP 9000 Series 800 server family includes four classes of systems, each aimed at a different market.

Three F Class machines are designed for small businesses and have two expansion slots each. They range in price from $11,250 to $17,500 and include 16 megabytes of RAM and a 500-megabyte hard drive.

The G, H, and I Classes are aimed at larger installations and range in price from $20,000 to $103,000.

The servers come in deskside or rack-mountable packages with optional hardware and the HP-UX Unix operating system preinstalled and preconfigured.

HP also introduced faster SCSI disks with more capacity, with the F Class systems capable of supporting a maximum 42 gigabytes of storage.

HP has also simplified its ordering system — a source of customer complaints in the past — and streamlined its software licensing structure.

HP, in Palo Alto, Calif., can be reached at (800) 752-0900.

Sound unit adds audio to portable presentations

By Kelley Damore

For users on the go who want to play audio with their presentations, Digispeech Inc.'s Portable Sound may be music to the ears.

The external audio system plugs into a parallel port and has a built-in speaker, microphone, and input jacks for a CD player. The machine also offers output jacks for headsets or external speakers.

Weighing 14 ounces, Portable Sound can operate on AC or batteries; an AC/DC adapter is included.

The system is divided into two units. The unit that plugs into the parallel port measures 8½ inches by 3 inches by 1 inch. The speaker unit is 7 inches by 2½ inches by 2 inches.

The system offers stereo sound for the playback of digitized voices, music, and sound effects.

The parallel peripheral has a built-in "pass-through" so users can use the Digispeech sound system and a printer without a separate switch box.

The sound unit is compatible with Windows Multimedia Extensions, Windows 3.1, Sound Blaster Pro, and Pro Audio Spectrum. The $198.95 machine will ship in January.

Placerville, Calif.-based Digispeech can be reached at (916) 621-1787.

Sixty ways to leave your lover.

Dear John,
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DEAR JOHN.

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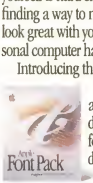
Finding the right words to express yourself is hard enough. Fortunately, finding a way to make those words look great with your Macintosh* personal computer has never been easier.

Introducing the Apple* Font Pack.



It's an indispensable collection of 43 distinctive TrueType* fonts that gives any document you're working on more impact. From letters and memos to spreadsheets and presentations. All for about the price of a dozen roses.

Combine these fonts with the 21 TrueType fonts that come with System 7,* and you're looking at over 60 ways to make a bigger impression.

No matter how big the impression may be. Because TrueType ensures smooth, crisp-looking characters on screen and in print at any point size.

Installation is easy, too. Pop in the disk and let the automatic installer do the rest. Done. Go to work.

But before you can do that, you will have to visit an Apple software reseller in your area.

For the name of one near you, call 1-800-538-9696, ext.150. Or, if you're reading this in Canada, call 1-800-665-2775, ext.910.

And discover the kind of power that comes with changing your image. The power to be your best.*

Apple

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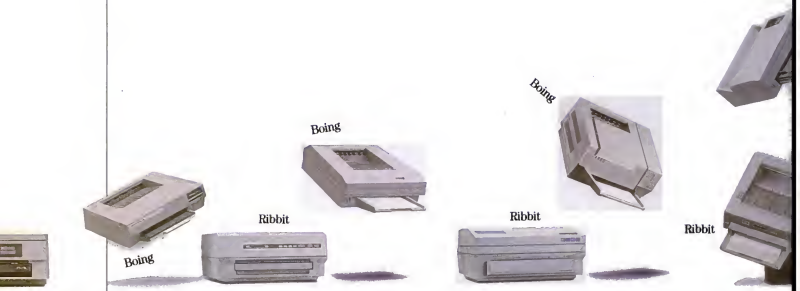
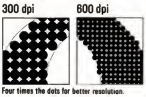
Other laser printers play leapfrog trying to catch up with the HP LaserJet.



The new HP LaserJet 4 printer isn't a hopped-up version of the past generation. Its new, advanced design sets much higher standards for print quality, speed, built-in features and value than ever before.

Higher resolution. More typefaces.

Unlike other 600 dpi laser printers, the HP LaserJet 4 was designed for 600 dpi printing from the ground up.



Four times the dots for better resolution.

As a result, it produces the best 600 x 600 dpi resolution ever for noticeably crisper, clearer text and graphics. At less than a 300 dpi price.

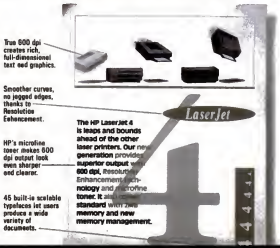
Microfine toner and HP's exclusive Resolution Enhancement technology give you razor-sharp edges and much smoother curves.

With 45 scalable typefaces built into the printer, users can produce a wide variety of documents. Without hassling with downloading or accessory cartridges. Or buying additional typefaces.

More speed, more trays, more flexibility.

Thanks to a new RISC processor, tuned vector graphics and faster I/Os, the HP LaserJet 4 also sets new standards for speed. It even prints many 600 dpi graphics at a true 8 pages per minute. It's faster on networks, too.

With 2 MB of memory built in and new internal memory compression algorithms, virtually all 300 dpi and many 600 dpi documents print from standard memory. Two standard paper trays, with a total capacity of 350 sheets, and an optional 500-sheet tray let users keep printing without constantly reloading different sizes and types of paper. And the optional 75-capacity power envelope feeder saves them from manual feeding. Or dealing with jams.



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Introducing the new HP LaserJet 4 printer. So advanced, there's no catching it.

Mixed environment compatibility. Faster Windows.
The LaserJet 4 is very much at ease with most languages and personal computing platforms. Automatic switching lets it switch between HP's PCL 5 printer language and optional PostScript Level 2 software from Adobe. Hot I/Os allow different hosts to be connected simultaneously.

Optional JetDirect cards provide LAN connections to Ethernet, TokenRing, TCP/IP and LocalTalk/EtherTalk. This makes it easy to plug into just about any network, including PC and Mac LANs. And to get really fast network performance.

To optimize the LaserJet 4 for Windows printing, we codeveloped some breakthroughs with Microsoft.* Including Windows 3.1 TrueType fonts and rasterizer built in to make sure your users get fast, WYSIWYG printing. The fast Windows driver with HP-GL/2 vector graphics also enhances printing speed.

Several popular software drivers are included: Windows, WordPerfect and Lotus. As well as the new HP Explorer PC utility software, which provides a printing tutorial to guide your users through set-up and operation of the printer's new features.

All this makes the HP LaserJet 4 printer supremely simple to plug-and-play. As you'd expect, it also offers complete document and software compatibility with the HP LaserJet III printer.

Setting the standard in price, too.
With all these advances and more, you'd expect a big jump in price.

Quite the opposite. At just $2,199,* the HP LaserJet 4 printer lists for less than the printer it replaces. And, of course, it comes with pace-setting HP quality and reliability.

Call **1-800-LASERJET** (1-800-527-3753), **Ext. 7133** for the name of your nearest authorized HP LaserJet dealer.† And ask for a print sample to see just how great the output looks.**

If it isn't a LaserJet, it's only a laser printer.

HEWLETT PACKARD

*Suggested U.S. list price. †In Canada call 1-800-387-3867, Ext. 7133. **To have a LaserJet 4 printer data sheet sent immediately to you via fax machine, call 1-800-954-1492 from your touch-tone phone. Microsoft is a U.S. registered trademark of Microsoft Corp. Windows 3.1 is a product of Microsoft Corp. Adobe and PostScript are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions. Lotus is a U.S. registered trademark of Lotus Development Corporation.

PIPELINE from page 29

SHIPPING

Video production board now shipping

Video users will be able to handle most preproduction and postproduction work on their Macintoshes with a $5,999 board from SuperMac Technologies. The DigitalFilm board supports graphics resolutions of 640 by 480 and can capture video at the rate of 30 frames per second. The board is designed for use with Apple's Quadra line and any NuBus-based Mac II. (408) 245-2202.

The GraphicsEngine 32VL from **Actix Systems Inc.** is designed to speed up Windows, CAD, and desktop publishing operations by as much as 30 percent. The $249 board uses the Video Electronics Standards Association local bus design and can support resolutions of as great as 1,280 by 1,024 in noninterlaced mode. (800) 927-5557.

Users of EISA-based systems and IDE drives can now get a little faster I/O throughput with **Morse Technology**'s KP 8050 "2-in-1" IDE Accelerator. The hard drive controller recognizes whether an application or system requires data caching, and its 64K of static RAM memory helps it speed up throughput by 20 times, the company said. The controller is priced at $499. (818) 854-8681.

ANNOUNCED

Fast SCSI-2 drives introduced for Mac

A line of Fast SCSI-2 drives ranging in capacity from 510 megabytes to 2.7 gigabytes from Mass Microsystems come in both external and internal versions. The 10 drives are priced from $2,095 to $8,595 and offer Macintosh users average seek times of 10½ milliseconds and sustained data transfer rates of as much as 6½ megabytes per second. The drives are to start shipping this week. (408) 522-1200.

FINANCES

Quantum buys back 1.5 million shares

Following through on a board authorization made earlier this year, Quantum Corp. has decided to repurchase 1.5 million shares of its stock for $19.9 million. With $361 million in cash and investments, the company said it felt now was a good time to start repurchasing as many as 4.5 million shares.

Diamond readies accelerator cards

By Cate Corcoran

Diamond Computer Systems Inc. will soon pepper the market with a range of Windows accelerator cards and sound boards for every taste and pocketbook.

Diamond's fastest accelerator card, the Viper VLB, uses the Weitek P9000 graphics accelerator chip in a VESA local bus configuration.

It transfers data in 32-bit chunks at the same speed at which the system CPU runs, the company said.

The card offers resolutions of 1,280 by 1,024 with 256 colors, 1,024 by 768 with 65,000 colors, and 800 by 600 or 640 by 480 with 16.7 million colors.

The Viper VLB comes with Panacea's TurboDLD Deluxe accelerated driver for AutoCAD, Diamond's TurboWindows drivers, and a 24-bit image editing program.

A 1-megabyte board lists for $499. For $549, users can get a card configured with 2 megabytes of memory. The cards will ship at the end of January.

For users who don't need the performance of the Viper board, Diamond offers the Stealth Pro line.

A 1-megabyte card lists for $349; a 2-megabyte board lists for $479. It comes in ISA or VESA local bus versions and will ship at the end of January.

All the Pro boards support resolutions of 1,280 by 1,024 with 16 colors and a refresh rate of 74 hertz. The 2-megabyte versions support a maximum resolution of 1,280 by 1,024 with 256 colors.

Diamond also offers the Stealth 24, based on S3's 86C801 chip. It will ship at the end of this month for $249 with 1 megabyte of dynamic RAM.

The Stealth 24 has a maximum noninterlaced resolution of 1,280 by 1,024 pixels with 16 colors. The board can display 16.7 million colors at a resolution of 640 by 480 pixels.

Diamond, in Sunnyvale, Calif., can be reached at (408) 736-2000.

Radius Rocket card boosts Macintosh throughput

Radius Inc. is shipping a booster card to improve the throughput of its Radius Rocket accelerator card for the Macintosh.

The SCSI-2 Booster uses a 40-MHz SCSI-2 controller chip that boosts the data throughput for SCSI drives to a sustained rate of 5 megabytes per second.

Radius designed the $229 controller specifically for its Rocket accelerator card — it plugs into the processor direct socket of the Rocket board.

By adding a SCSI controller to the Rocket card, users can also use SCSI-based peripheral devices that won't interrupt the Rocket's processing tasks, Radius said.

The Rocket with Rocket Share software acts as an independent processor.

Radius Inc., in San Jose, Calif., can be reached at (800) 227-2795.

— Tom Quinlan

The quickest way between two points used to be a straight line.

Tech Talk / Steve Gibson

Scientifically speaking, benchmarking is a 'really hard' problem

My brain hurts. The more you think about benchmarking, the more you realize how little you can know about it. Benchmarking is a really hard problem.

A great many years ago when I was in high school, I spent some wonderful time at Stanford University's Artificial Intelligence Lab in Palo Alto, Calif. At that fine institution, I acquired a somewhat altered vocabulary. The cocky postgraduate predoctoral candidates who populated "the lab" classified all problems as "obvious," "nonobvious," "hard," and "really hard." If a problem was declared "obvious," you were publicly chastised and humiliated for even voicing it. These megaminds at Stanford regarded as "obvious" such problems as modeling the emotional maturation cycle of arbitrary alien life-forms given only their number of toes or determining the average consumer's response to various snow tire tread patterns.

"Nonobvious" problems were at least interesting to these brains, and if you managed to think up such a problem, you were momentarily rewarded with a raised eyebrow and a "hmmmmmmm" before the already fully thought-out answer was reeled off for you. These guys were truly awesome. "Hard problems" and "really hard problems" were recognized as such instantly and were bandled much differently. A hard problem was one that had not yet been solved by anyone, but everyone knew there was a solution available. And if they *had* to solve it, they of course could.

A really bard problem, on the other hand, was one that quite obviously had no solution. People who had chosen really hard problems for their doctoral theses were regarded with something between awe and pity. The sense was that these poor slobs were going to be here for a long, long time.

So, with that bit of lore firmly established, I'll restate my initial assertion: Having thought about it at great length, I've come to realize that benchmarking is inherently a "really hard" problem. Tbis is particularly annoying because benchmarking will necessarily be one of the fundamental tools I use to arrive at the specifications for Steve's Dream Machine, circa 1993.

What makes benchmarking so difficult? In a phrase: Doing it rigbt. It's quite easy to do benchmarking incorrectly or blindly or meaninglessly or uselessly or for yourself and not for anyone else. But you and I are not going to accept any such benchmarking from me. We're going to want benchmarks that *mean something* to us, or more importantly, to you. It's tbe search for meaning from a benchmark tbat moves it from being an "obvious" problem to one that promises to be "really bard."

Then there are the problems created by the fact that we're all inherently different from eacb otber. We bave differing expectations and do quite different tbings witb our computers. So even if we could be clear what a benchmark score means to me, it's not clear that you would care about whatever the benchmark is measuring.

What makes benchmarking so difficult? Doing it right.

And then there's the time factor problem. At tbis moment, the subsystem components that I care about testing, such as video display adapters, local bus motherboards, local bus IDE and SCSI controllers, and competing processor chips, are in as much a state of flux as I've ever seen them. The new crop of Windows accelerator cards sporting the new S3 graphic user interface accelerator chips (the 86C801 and 86C805) have just arrived ... but in just another month or so, the higher end cards with tbe S3 928 or the incredible new Weitek GUI accelerators will be shipping. And tbey promise to bump our expectation of performance up a notch. So what should we do in the mean time? (My advice to you is *not* to purcbase *any* display adapter if you can possibly wait.)

I've also got my eye on an incredible new VESA local bus motherboard that supports any 486 chip from 20 MHz to 66 MHz; 64 megabytes of main memory; 64K, 128K, or 256K secondary cache; built-in 24-bit Super VGA with the new S3 86C805 GUI accelerator; a built-in 10Base-T Ethernet interface; built-in IDE hard disk controller; built-in floppy controller and serial and parallel communications ports ... but it's not quite in full production. Sigb.

It seems that another couple of months will be required before these various new goodies have made it fully into the world and have settled down. The problem of benchmarking is so great that we'll spend some time between now and then discussing the issues and solutions I've found to this "really hard" problem.

Steve Gibson is the developer and publisher of SpinRite and president of Gibson Research Corp., based in Irvine, Calif. Send comments to InfoWorld at MCI Mail 259-4127 or fax them to (415) 358-1269.

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Introducing EtherLink® III, with Parallel Tasking, the fastest, most advanced adapter family available.

EtherLink III is 25 percent faster than the leading adapter today. Its Parallel Tasking design uses pipelining to push communication between PC and network to the limit. It's so unique it's even patent-pending.

The result: a 16-bit adapter family that lets you take full advantage of your ISA and EISA machines.

Yet EtherLink III is so easy to install, all you type is one command. The adapter does the rest, configuring itself automatically. And it comes with network management capabilities and supports all major media types. Yet for all this, the EtherLink III family is so reliable that should one ever fail, 3Com will replace it free of charge.

To learn more about this remarkable Parallel Tasking adapter and its surprisingly low price, call **1-800-NET-3Com**. Or see your nearest 3Com reseller. You'll find an adapter technology that's faster than all the others.

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To get the best CD-ROM can offer, give Multimedia Gallery a spin.

NEC's Image™ Series PCs together with one of our MultiSync® FG™ monitors and our MultiSpin CD-ROM reader is the perfect way to become Multimedia ready.

Strap yourself into your seat. Hold on tightly to your PC. And get ready to take the ride of your life. A ride through the galaxies, and to the great wonders of the world. A ride so exciting, it'll leave you gasping for breath, and in wonder. NEC's Multimedia Gallery™ system combines six of the hottest Multimedia software titles on the market with NEC's industry leading CDR-74 CD-ROM reader with MultiSpin™ technology—the world's first multi-speed CD-ROM reader. And all this Multimedia power comes in one package. Multimedia Gallery also includes stereo speakers, stereo headphones, an audio board with SCSI interface, and everything needed for easy installation. Multimedia Gallery. Give us a spin and we'll turn you on to all the wonders CD-ROM has to offer. For more information, call 1-800-NEC-INFO. (In Canada: 1-800-343-4418.) Or for details via fax, call NEC FastFacts™ at 1-800-366-0476, request #810101.

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Three great products. One great price.

$74 For a limited time, you can purchase IBM DOS 5.0, Stacker® Version 2.0 Disk Compression and 386MAX® Version 6 Memory Manager for an incredibly low $74.* That's a savings of up to $200. Time is limited, so don't delay. Because at $74, it will be hard to find a better deal. For more information, see your IBM authorized dealer or call **1 800 426-2968.**

*$74 for upgrade from any DOS. $135 for base operating system. Offer expires March 31, 1993. IBM reserves the right to withdraw or modify this offer at any time. Stacker Version 2.0 and 386MAX Version 6 packaged with limited documentation. Full documentation available through respective companies. IBM makes no representations or warranties regarding Stacker or 386MAX. Stacker is a registered trademark of Stac Electronics. 386MAX and Qualitas are registered trademarks of Qualitas Corporation. IBM is a registered trademark of International Business Machines Corporation. © 1992 IBM Corp.

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NEWS / NETWORKING

PIPELINE

SHIPPING

Alta ships 16-bit adapters for WFW

Alta Research Corp. is shipping 16-bit Ethernet LAN adapters that are fully compatible with Microsoft Corp.'s Windows for Workgroups software. They offer a dual-cabling option and feature automatic configuration for 8- or 16-bit slots. The EtherCombo-16 T/C retails for $149; the EtherTPI-16 T is priced at $139. (800) 423-8535.

The MacSnet Card, a board level ISDN terminal adapter now shipping from **OST Inc.**, can be used with Macintosh II series, Quadra, and any NuBus-compatible microcomputers. Priced at $1,095, MacSnet provides ISDN basic rate access for Mac users allowing for simultaneous voice, data, and image transmission. The MacSnet has an effective throughput of 60 kilobits per second (kbps) per channel in X.25 and supports 56/64-kbps rate adaption. (703) 817-0400.

With **ZyXel USA**'s cellular modem, users can transmit and receive data — including secure digitized voice — from remote locations at speeds of up to 9.6 kbps. The modem, which can operate over any cellular network, can be connected to any notebook or laptop and works in DOS, Windows, OS/2, Macintosh, and Unix environments. The ZyXel cellular modem is available as a $200 option to buyers of ZyXels' U+ series of modems. (714) 693-0808.

ANNOUNCED

NetFrame is offering superserver service

NetFrame Systems Inc. has announced a service program for its line of fault-tolerant superservers that allows an organization to choose the program suitable for its needs. NetService provides several support options, including Software Update Service, Software Telephone Support, and Total Support Service. (408) 944-0600.

Gandalf Mobile Systems Inc.'s family of Mobitex Radio-Modems incorporate the AT&T Microelectronics Mobitex/V.32 data pump chip set. The modems, which operate at 8 kbps, are slated to ship in the second quarter of 1993. Pricing starts at $1,250. (708) 517-3600.

Continued on page 51

3Com plan to ease router management

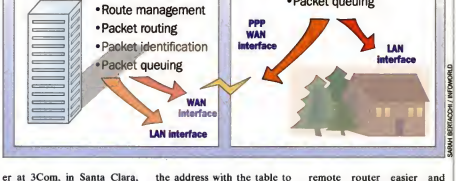
By Torsten Busse

3Com Corp. last week introduced an internetworking technology that analysts say could ease router management and provide an ideal solution for remote branch locations.

3Com's Boundary Routing Systems Architecture centralizes most of the complicated decision-making associated with managing internetwork traffic into one main router.

This offloading allows "boundary" or departmental routers installed at remote sites to make simple decisions on whether to send the packet to a local LAN address or to the WAN backbone, company officials said.

"Instead of having each router at every location perform route and network management, packet identification and routing, the remote router now only makes the intelligent forwarding decision," said Joe Furgerson, product line manager at 3Com, in Santa Clara, Calif.



The boundary router keeps a table of the network addresses of local LAN nodes. When it receives a packet, it matches the address with the table to decide whether the recipient is local or if it needs to be queued to the WAN interface.

The main advantage of the technology is that it makes the remote router easier and cheaper to administer and configure. To add new routing functions to the network, the administrator makes the chang-

See 3COM, page 47

DCA offers client support for NetWare SAA gateway

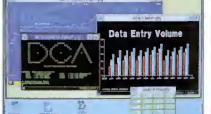
Irma Workstation for Windows, DOS support TCP/IP and 3270 emulation

By Cheryl Gerber

Digital Communications Associates Inc. released Windows and DOS versions of its Irma Workstation communication server that provide support for TCP/IP and Novell Inc.'s NetWare for SAA gateway.

Irma Workstation for Windows, Version 2.1 and Irma Workstation for DOS, Version 2.0 now support Telenet 3270, which runs on TCP/IP, and 3270 terminal emulation to attach mainframes to PCs.

"This is the first time DCA has offered client support for a Novell gateway," said Bob McGowan, DCA workstation marketing manager.



DCA's Irma WorkStation supports NetWare for SAA and TN3270 emulation over TCP/IP.

Irma Workstation for Windows 2.1 includes Quickbar, a Windows push-button menu that lets users access frequently used Windows and 3270 functions quickly. Those functions include session activate and deactivate, file transfer, and a graphical keyboard editor.

Additionally, users of DCA's existing product, IrmaLAN Extended Platform, now can use the Irma Workstation for Windows version as a client for a NetWare gateway.

Irma Workstation for DOS provides users with a graphical editor that lets them modify the keyboard layout to provide quick access to frequently used keys and functions. The version also enables users to dial into a PC running the program from a remote location.

Irma Workstation for Windows 2.1 is available now for $495. Irma Workstation for DOS will ship in January for $425. Users of current versions can upgrade free through February 28. Users of earlier versions can upgrade for $95.

DCA, in Alpharetta, Ga., can reached at (800) 348-3221.

UniSQL/M unifies multiple databases with object-oriented DBMS

By Scott Mace

CHICAGO — UniSQL/M, billed as the first DBMS to unify multiple vendors' databases from both relational and object-oriented sources, was announced here at last week's Database World show.

The UniSQL/M Multidatabase System lets Unix users unify the schemas of a collection of distributed multivendor relational databases to form a single logical database schema. UniSQL/M's object-oriented query language, along with its front-end tools, can form a complete platform for developing any database application.

UniSQL/M provides an ANSI-compatible SQL query language, automatic transaction management, dynamic schema management, access authorization, and database views. The DBMS' automatic two-phase commit spans multiple heterogeneous databases.

UniSQL/M users can represent relational-based data as standard relational tables accessing via SQL or as object-oriented classes with full support for methods, composition, inheritance, encapsulation, and polymorphism, officials said.

Version 1.0 of the UniSQL/M Multidatabase System for Sparcstation-compatible systems is now being beta tested with Version 6.4 of Ingres and Version 1.2 of the UniSQL/X DBMS. Version 1.0 will ship in January. Support for the IBM RS/6000, Oracle, SQL Server, and IBM's DB2 databases will follow.

Future versions of UniSQL/M will support Informix, IBM's IMS, and DEC's RMS. A single-user license of UniSQL/M begins at $3,995.

UniSQL, in Austin, Texas, can be reached at (512) 343-7297.

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But for a true picture of just how great the color on the T1850C is, we invite you to place it side by side with other color notebooks. A demonstration that should convince you not only are ordinary monochromes on the way out, but a number of ordinary color notebooks as well.

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Early ISDN vendors find warmer reception in Europe

By Elizabeth Heichler

BRIGHTON, England — Despite last month's successful tests of ISDN switching technologies in the United States, American networking firms interested in the technology are turning to Europe.

Integrated Services Digital Network-based projects from several U.S. firms, including IBM, were debuted or discussed during this month's Telecommunications Managers Association's annual convention here.

IBM demonstrated ISDN network management as well as on-line transaction processing (OLTP) that used data across an ISDN network. In the IBM demonstration, CICS OS/2 ran local and remote transaction processing servers and DOS/Windows clients.

Separately, IBM announced that its IBM UK unit has entered a joint development deal with European networking vendor Global Communications Ltd. It is aimed at creating integrated voice and data solutions to add to IBM's portfolio of Voice Enhanced Solutions.

The deal also involves developing a range of voice and fax processing applications. These will use IBM's CallPath architecture and Global's WorldWindow product, which the firm described as a telephony application engine and voice processing platform.

ISDN is gaining acceptance more rapidly in Europe, where lines with speeds of 64 kbps are already in place.

Global also announced WorldKey, which acts as a server to WorldWindow and provides connectivity to host services such as databases and E-mail networks.

But it was not just multinational giants like IBM that were at the ISDN expo. VMX Ltd., the British subsidiary of San Jose, Calif.-based VMX, showed a new fax messaging capability for its voice messaging software. Fax Mail Plus lets users access voice and fax messages through a single "mixed media" mailbox. It uses existing E-mail systems through VMX's e-Mailworks software, which interoperates with Digital's All-in-1 and IBM's Profs and OfficeVision.

New applications including fax mail, fax on demand, and fax overflow can now be added to existing VMX 200/300 voice processing platforms.

RAM Mobile Data Ltd. and Telepartner International of Farmington, Conn., announced the availability of Mobi/3270TM, SNA 3270 software that provides wireless communications to corporate databases and messaging systems via the RAM Mobile Data network. The software resides on the portable PC and emulates 3270 terminals.

On the show floor, videoconferencing over ISDN drew onlookers to demos by PictureTel UK Ltd. and Internet Technology Ltd. Internet's Viking portable videoconferencing system is soon to be available throughout Europe for roughly $30,000, according to the firm.

Also on view from a variety of smaller U.S. and European firms were commercially available ISDN terminal adapters, ISDN-to-Ethernet LAN bridges and routers, Group 4 fax, ISDN faxes, and bandwidth on demand products.

ISDN is gaining acceptance more rapidly in Europe than in the United States, particularly in Germany, France, and the United Kingdom, where tens of thousands of public lines capable of carrying voice, data, and video at speeds of 64 kilobits per second are already in place.

"The ISDN infrastructure in Europe is well ahead of the U.S.," said Gerry O'Prey, technical director of London-based Dataflex Design Ltd. The market for ISDN applications recently scaled a barrier when Europeans agreed to standardize on a single API for addressing ISDN interface cards, he added.

— Elizabeth Heichler is the European correspondent for IDG News Service.

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TGV's MultiNet Services lets DEC environments add NetWare PCs

By Jayne Wilson

Customers can better integrate Novell NetWare LANs with Digital Equipment Corp. environments using networking software from TGV Inc.

TGV's MultiNet Services for NetWare Users, available early next year, lets any VAX or Alpha system appear as a NetWare server to the DOS PCs in the LAN. It also preserves the native PC LAN environment by operating like native NetWare, company officials said.

"The front end and all the commands are the same," said Kurt Kruger, TGV director of marketing. "Digital hardware and PCs [connected using NetWare] often exist in the same network."

The software also provides NetWare users with access to DEC's Open VMS-based file and print services from VAX and Alpha hardware.

The file services allow users to store PC files on the VAX or Alpha and to access Open VMS files, which will appear as if on the NetWare server. The print services let PC users access printers linked to VAX or Alpha machines.

The package is loaded onto the VAX or Alpha server; no additional software is required on the PC. "The PC uses the same software it would use to connect to a Novell NetWare server," Kruger said.

MultiNet Services for NetWare Users also includes a shared library that allows program developers to write distributed applications for Open VMS, which integrates existing NetWare resources.

This software is the latest complementary product for MultiNet, TGV's multiprotocol environment that includes TCP/IP for DEC's Open VMS.

MultiNet Services for NetWare Users will ship in January, starting at $1,000.

TGV of Santa Cruz, Calif., can be reached at (800) TGV-3440.

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3COM / from page 43

3Com plan to ease router management

es only at the central router, instead of on each router on the network.

Analysts welcomed 3Com's attempt to address the routing needs of organizations with many geographically dispersed branch offices, where the supply of network-savvy support is scant.

"3Com is taking a fresh look at the requirements for branch office routers, and hopefully they will spur other vendors to think hard about it," said Janet Hyland, director of network strategy services at Forrester Research, in Cambridge, Mass.

"Remote branch offices are ill-served by existing router technology," Hyland said. "They are too complex and managing them is hugely expensive."

3Com has a good opportunity to target financial, insurance, and retail organizations, many of which are currently networking their remote sites, said Jim Harrison, an analyst with the Westport, Conn.-based Meta Group.

"Putting routers in hundreds of locations is expensive and configuring these distributed services easily becomes a management burden," Harrison said.

Reducing the complexity of routers is a creative approach to stay competitive, said Charlie Robbins, an analyst with the Aberdeen Group.

3Com's Boundary Routing Architecture works with routers made by third-party vendors but requires at least a NetBuilder II router running on the central backbone, company officials said.

Hardware and software based on the technology will be introduced in two months, said Alan Kessler, 3Com network systems division vice president.

These products will offer support for leased-line and dial-up connections and Ethernet and Token Ring topologies, and it will provide configuration tools. Prices and availability have not been announced, but analysts and 3Com officials said routers supporting the architecture are likely to cost around $4,000.

The second generation of products planned for the second half of 1993 will provide support for the most commonly used WAN connectivity options, such as frame relay and X.25, and will feature compression technologies.

In late 1993, 3Com will submit the specifications for its Boundary Routing Architecture to the Internet Engineering Task Force, Kessler said.

Contact 3Com at (800) 638-3266.

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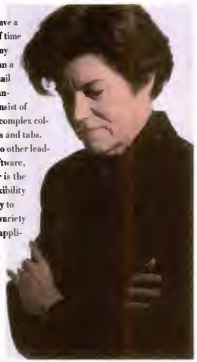

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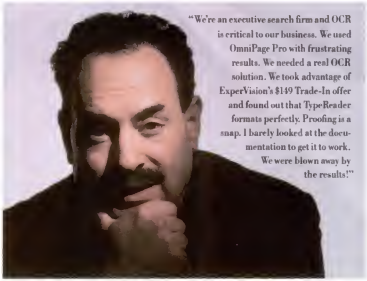

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Upgrade your memory, reconfigure your system. *Add memory to a Mac, and it reconfigures itself accordingly. But add memory to a PC, and you'll almost always have to run a setup program to configure the new memory – or the computer won't know what to do with it.*

Add Windows, buy a new PC. *Most PCs are not today sorted designed for graphical computing. So if you want to run Windows, you may have to buy a new computer. Why not consider a Macintosh and avoid all the problems on this page forever?*

Add almost anything, reconfigure your system. *Expanding your PC's capabilities can be amazingly frustrating. But a Macintosh with adjusts to a bolever extra device you add to it.*

Buy a mouse, reconfigure your system. *If your system doesn't come with a mouse, you'll want one. But first be prepared to install and configure a special software driver. (No need with a Mac – you just plug it in.)*

Play and record sounds, reconfigure your system. *Multimedia promises to be the future of computing. But most PCs aren't ready for it. So if you want to work with sound, it'll cost you time and trouble – not to mention money. On a Mac, sound is built in.*

Call for help, write a check. *There is one easy way to expand a complicated PC – here somebody else is do it for you. Over time, of course, that can wind up costing you more than the PC.*

Add peripherals, reconfigure your system for each one. *Want to add a CD-ROM or hard disk drive? Then prepare to spend hours installing cards, flipping switches and editing files – for each one. With a Mac, you can add up to seven peripherals by simply plugging them in and clicking a button or two.*

Add printer, adjust DIP switches. *Hooking up a printer seems easy. I add you set your DIP switches, install your driver, locate your Windows diskettes, make an error and start all over again.*

Expand your PC, take two aspirin. *Inevitably you'll want to expand your computer's capabilities by adding extra devices. The more instructions you slog through and switches you fiddle with the more time it will take. And the more pain relieve you'll need.*

Change monitors, reconfigure your system. *Add a new monitor and you'll have to reconfigure your entire system or your monitor could look like this one. A Mac recognizes a new monitor and adjusts to it automatically.*

Whoops! *When you add something to an ordinary PC, you may have to reconfigure your system – a process of hardware and software adjustments, which can be complex, tedious, and take up hours of your time.*

Manual labor. *Software like Windows purports to make things easier. But the reality is, you'll still spend hours reading manuals just to make it all work – time you could spend doing more useful things with your computer.*

On a typical PC, even adding a simple hard disk can be extraordinarily complicated. You'll probably have to "reconfigure" your system – the time-consuming process of telling your computer what pieces you've added. You may have to edit complex CONFIG.SYS and SYSTEM.INI files, install special device drivers and fiddle with DIP switches. And, of course, building even a basic network is extremely difficult – what with installing

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cards and networking software. An Apple Macintosh, on the other hand, knows when you've added a hard drive. Installing a CD-ROM drive or scanner is a matter of plugging in a cable and clicking a couple of buttons. Even installing a network requires nothing more than plugging one Mac into another. It's just one more example of how a Macintosh works in a simple, logical way. So you can, too.

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This Macintosh IIci has built-in monitor support for up to a 14" color monitor. Plug in a card, and you can add a second monitor – significantly enlarging your desktop work area so you can move documents, files and folders across both screens.

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LAN Talk / Paul Merenbloom

A five-part recipe cooks up simple LAN printer management

Using DOS environment variables to help manage the "menu mess" is just the tip of the LAN management iceberg. Network printing can be just as big a problem as menu management.

Hassles experienced by LAN administrators setting up and maintaining multiple printers, paper types, etc. are often compounded by user frustrations with selecting and switching between printers.

But there is a simple tool — made up of three-parts DOS environment variable, one-part DOS print logicals, and one-part LAN administrator log-in script/batch coding — that can reduce these headaches.

Taking advantage of network print redirectors — such as Novell's "Capture" routine; DOS' LPT1, LPT2, and LPT3 logicals; and some group identification information — you can give users access to three different printers at once.

For example, using the techniques described for menu capturing, you can assign print-queue names to DOS environment variables "white," "WP," and "graphic," then in the log-in script and batch files you can assign these printers to DOS' LPTx logicals.

The actual queue name for each variable could be set based on membership in specific network groups. Membership in each group would be based on the user's physical location and would correspond to printers in that area.

For example, you could add a line to the log-in script that reads "IF MEMBER OF PS-1 THEN DOS SET WHITE=PQ-5-01." In this illustration, "PS-1" is a shorthand for print-station No. 1 (telling us where the user sits), and PQ-5-01 is the printer with white paper.

Similarly, you could set the values for the letterhead and graphic variables or incorporate all three into a compound "if then" statement within the log-in script.

Once the environment variable values are set, they can be converted into valid print logicals with a simple batch file that includes the following commands:

```
CAPTURE /local=1 /queue=%WHITE%
CAPTURE /local=2 /queue=%LTRHD%
CAPTURE /local=3 /queue=%GRAPHIC%
```

In these commands for the Novell Capture example, the number following the "local=" indicates the printer assignment. Note that the translation of the values for each logical (white, graphic, etc.) can only take place in a DOS batch file and will not work from the command line interactively.

Once set up, users can simply print to LPT1 for white paper, LPT2 for letterhead or bond (assuming a multibin sheet feeder), and LPT3 for graphics output.

This can be expanded further to include other options such as time-out parameters, banner page inclusion or exclusion, or user notification (when the print job is completed).

There are many other applications for DOS environment variables. If you are using TCP/IP in a multiprotocol environment, you can set the logical connection number (the ID or channel that the network operating system uses to identify and communicate with the workstation) to a DOS variable.

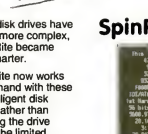
That environment variable could then become a control mechanism to ensure that two stations do not allocate the same IP address and crash. Likewise, variables can be set to indicate a machine's CPU type, presence of local modems, and more.

The simple storing of a user's log-in name to an environment variable could enable you to use a line such as "MAP G:=VOL1:DATA\PRIVATE\%USER%" to automatically route individuals to their "own" home directory upon log in.

DOS environment variables aren't new or high tech, but they are flexible, easy, and powerful additions to your toolkit. Best of all, you don't have to use the PC's RAM with TSR programs.

Paul Merenbloom is manager of information technology at Otsuka America Pharmaceuticals, in Rockville, Md. Send comments to him via CompuServe at 70743,3524 or via MCI Mail at Paul Merenbloom.

Introducing SpinRite 3.0!



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Hard disk drives have become more complex, so SpinRite became much smarter.

SpinRite now works hand-in-hand with these new intelligent disk drives. Rather than accessing the drive through the limited "Interrupt 13" hard disk BIOS, SpinRite 3.0 "talks" directly to the hardware of standard hard disk drives.

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SpinRite provides an unbeatable solution for hard disk data recovery and problem prevention, lengthening the useful lifetime of any drive.

SpinRite 3.0 also introduces a break-through data recovery technology which is effective with all hard and floppy drives, new or old.

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SpinRite's dynamic statistical error analysis and data recovery technology, DynaStat™, repeatedly reads damaged sectors. DynaStat compares and analyzes several thousand samples of the sector's data. Variances in the returned data allow SpinRite to zero-in on the exact problem area within the sector.

DynaStat statistically analyzes and remaps the data back into its original magnetic flux reversal patterns. SpinRite can then determine the original contents of damaged and unreadable regions. The results are truly amazing.

To upgrade for only $29, call toll free (800) 736-0637.

SpinRite 3.0's suggested retail price is **$129**, but until February 1st this powerful new SpinRite may be purchased from Gibson Research at the special introductory price of just **$89**. Any prior version of SpinRite may be upgraded to 3.0 for just **$29**. For additional information, to purchase, or upgrade your current version of SpinRite, please contact Gibson Research Corp. toll free at: **(800) 736-0637**, or (714) 362-8800.

PIPELINE from page 43

PRICE CUTS

Tecmar cuts prices on DAT systems

Tecmar Inc. reduced the prices of its 4mm DataVault digital audio tape (DAT) systems. The 2-gigabyte DataVault 2000 system now lists for $2,595, down from $4,795. The 4-gigabyte DataVault 4000 systems now list for one-third less at $3,595. Prices for the ProLine Series DAT systems for Novell Inc.'s NetWare networks now list for between $400 and $500 less on the 4-gigabyte models and $1,100 and $1,200 on the 2-gigabyte models. (800) 624-8560.

SHIPPING

Novell ships DOS terminal emulation

Version 3.0 of Novell Inc.'s NetWare 3270 LAN Workstation terminal emulation software for DOS workstations now offers tighter integration with NetWare, improved security, and a "hot standby" feature that allows a workstation to dynamically reconnect to alternate hosts if a primary connection is lost. List price is $1,495; upgrades from Version 2.0 are $600. (800) 453-1267.

Hewlett-Packard Co. has added a transport independent, OSI-compatible Common Management Information Protocol service option to its latest version of its Unix network management platform, HP OpenView Distributed Management Platform, Release 3.2. The CMIP option is priced at $5,000. (800) 637-7740.

Brightwork Development Inc.'s NETremote 5.1 remote network diagnostic and troubleshooting software for NetWare networks is now faster as a result of compression technologies. It offers asynchronous communications links and allows direct access to the NetWare administration utilities. Supporting DOS and Windows interfaces, it is priced at $495 per file server. (800) 552-9876.

PUBLICATIONS

NetWare guide offered for small businesses

Random House Electronic Publishing is offering small businesses who are making networking decisions a guide to Novell's NetWare Lite for $20. "Using Novell NetWare Lite" includes chapters on using electronic mail, file sharing, network administration, connectivity, and other networking tips and insights. It also features an extensive command reference section and an appendix of add-on products. (212) 572-2750.

MicroAccess Ethernet card promises greater speed

By Jayne Wilson

With the Fast Ethernet standard little more than a gleam in the networking industry's eye, a small network interface card vendor is trying to jump-start the market.

MicroAccess Inc. this month ships a PC interface card that promises 100-megabit-per-second (mbps) throughputs over shielded or unshielded twisted-pair Ethernet networks.

MicroAccess' OptiLAN Fast Ethernet Card incorporates an FDDI-type 4,500-bit packet with the Ethernet protocol. Embedded in the card's software drivers is the FDDI protocol frame.

The product is designed to achieve 100 mbps without altering baseline network structures. It promises improved throughput for graphical applications including imaging, desktop publishing, and CAD/CAM, company officials said.

"Ethernet performance drops drastically after 20 to 30 users," said Roger Clough, senior marketing director. "Using the OptiLAN Fast Ethernet card, we can get roughly a hundred users before we see any speed decrease at all."

The card is based on technology that comes close to the Hewlett-Packard Co./AT&T Microelectronics Fast Ethernet proposal calling for a new type of non-CSMA/CD-based Ethernet that would allow users to transmit over standard voice-grade cable at 100 mbps.

The product plugs into a PC's EISA or ISA slot and also could be used in a file server on the network. It is positioned as an alternative to products based on pricier FDDI technology.

The OptiLAN Fast Ethernet 16-bit ISA card costs $699. The 32-bit EISA card is $1,595.

MicroAccess, in San Jose, Calif., can be reached at (800) 442-2221.

Most frequently used network management standards

Standard	Percent currently use	Added percent plan to use
Simple Network Management Protocol (SNMP)	40	20
IBM SystemsView	13	7
OSI Management (CMIP, CMOP, CMOL protocols	6	11
OSF's Distributed Management Environment (DME)	4	8
Government Network Management Profile (GNMP)	1	2
None	22	11
Other	6	3

SOURCE: DATAPRO

SNMP surpasses SystemsView

As more users outside the Fortune 500 begin implementing network management solutions, SNMP for the first time is being used more frequently than IBM's SystemsView, according to a recent survey by the market research firm Datapro Information Services Group.

"[SNMP] is an ad-hoc, nonvendor standard that grew out of the Internet community," said Christopher Baum, Datapro senior analyst and author of the survey. "Its dominance suggests that users are now setting their own standards based on what works best for them."

The three most important features mentioned when selecting an enterprise network management system are performance management, fault management, and configuration management, Baum said.

The Datapro survey also found that the average budget for communications expenditures declined 50 percent over the past year.

Datapro, in Delran, N.J., surveyed 438 network managers at organizations with revenues of more than $100 million.

— Torsten Busse

Software AG ships downsizing tools

Core UnixWare products unveiled

By Cheryl Gerber

To supply the growing demand for products that support downsizing, Software AG released a series of middleware modules and unveiled its core product line on Univel's UnixWare.

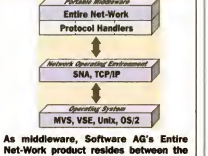
"Entire Net-Work," which resides between the application and the operating system, includes protocol support for TCP/IP drivers from Novell Inc. for Windows and OS/2, IBM's TCP/IP implementation for MVS and VM, NetManage's TCP/IP implementation for Windows, and Digital Equipment Corp.'s TCP/IP implementation for VMS.

To round out the desktop-to-mainframe topology, Software AG will ship Entire Net-Work for OS/2 this month and for Windows in January, said Tony Cook, product marketing manager for workstations.

Software AG also brought out its core product line — the Adabas database management, Natural application engineering, and Entire Net-Work products — on UnixWare, the spliced Unix and NetWare product from Univel.

The expansion of Entire Net-Work's protocol support lets users access a variety of servers in heterogeneous environments and illustrates Software AG's continued focus on Fortune 500 downsizing customers, said Michele Perry, director of Unix marketing.

Entire Net-Work



As middleware, Software AG's Entire Net-Work product resides between the application and operating environments. It now supports a wide variety of TCP/IP implementations.

Entire Net-Work ranges from $195 for a one-node Windows license to $59,900 for an unlimited-node mainframe license.

Software AG's core products on UnixWare range from $1,500 to $113,700.

Software AG, in San Jose, Calif., can be reached at (408) 473-8788.

Firm beats rivals to market

Software AG, a major player in mainframe and minicomputer databases, is beating some rivals to market with an alternative to two-phase commit technology for client/server computing.

"The feasibility of two-phase commit is limited for many users in distributed environments," said Dave MacSwain, vice president of product marketing. "Business doesn't stop if a node on a network goes down."

The Entire Transaction Propagator lets Adabas system administrators balance performance with the data access needs of multiple users. It does distributed database updates by logging each master database transaction and then periodically applies them to replicated databases.

If a network node does not respond immediately, the transaction is logged and guaranteed distribution at a later time.

"[Transaction propagation] is certainly not the only solution out there, but it's among the leaders," said Wayne Kernochan of the Aberdeen Group, in Boston.

The product works with all Adabas-supported platforms. It ships this month for $7,600.

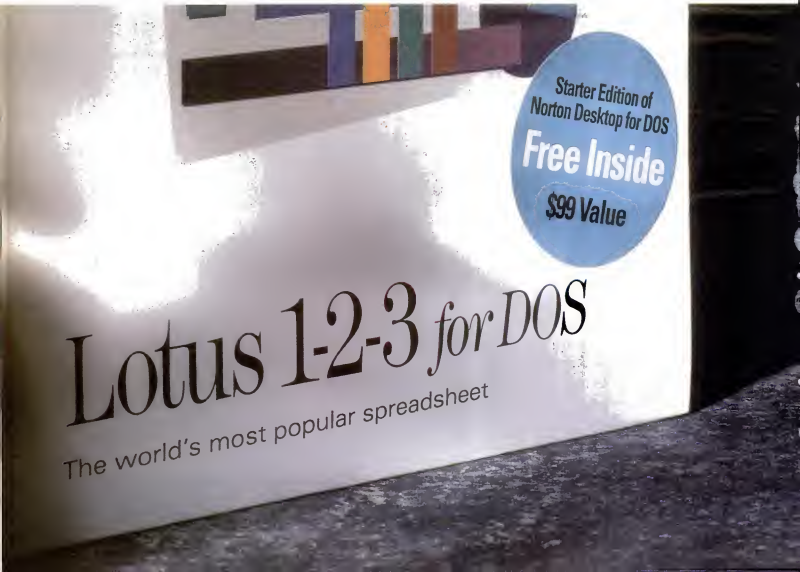
— Scott Mace

Not since Cracker inside a box bee

For a limited time, when you upgrade to 1-2-3 for DOS Release 2.4 or 3.4, you'll get the Starter Edition of the Norton Desktop free inside.

Strip off the plastic wrapper, rip open the box, and inside you'll find something almost as exciting as a secret decoder ring or mini-magnifying glass, and certainly worth a lot more: the Starter Edition of Symantec's Norton Desktop™ for DOS (a $99 value*).

The Starter Edition includes the Norton File Manager and the Norton AntiVirus.® Critics have praised the Norton File Manager for the way it



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Special prices good through December 31, 1992.

It's not surprising WordPe
Microsoft Word for Wind

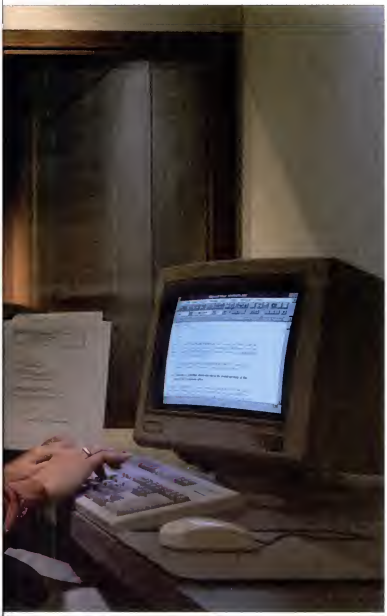
At last count, more than half a million WordPerfect® for DOS users have moved to the number one word processing software for Windows™: Microsoft® Word version 2.0 for Windows. And there are plenty of good reasons why.

First of all, WordPerfect for DOS users actually helped us to make Word for Windows easier to use.

During the development of Word for Windows, we invited WordPerfect

*Each year shows approximate total number of users who have switched. For more information inside the 50 United States, call (800) 426-9400, Dept HY3. Outside the U.S. and Canada, call (206) 936-8661. Customers in Canada, call (8

rfect users are switching to ows. They helped define it.

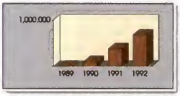


users to try it out on the things they do every day at work. We call these types of sessions "usability studies." They help us find out the way in which people use their computers, and how we can make it easier for them.

In this case, we were able to design features that can make not only your everyday work easier, but also the transition from WordPerfect.

Like the customizable Toolbar. It gives you one-step access to inserting bullets and printing envelopes. Word for Windows can also take all your familiar commands in WordPerfect, and then display the equivalent commands. So you can learn while you're working on your everyday tasks.

From November 1989 to August 1992, over half a million WordPerfect users have switched to Microsoft Word for Windows.*



We even had the National Software Testing Labs put Word for Windows to the test in ten cities across the country. The result was that nearly 8 out of 10 WordPerfect users preferred Microsoft Word for Windows for ease-of-use over WordPerfect for Windows.

But they're not the only ones who prefer Word for Windows. This year, it received numerous industry awards, including "Best Buy" by *PC World*, and "Editors' Choice" by *PC Magazine*.

To find out how easy it is to make the switch to Word for Windows, just give us a call at (800) 426-9400, Dept. HY9. And then spread the Word.

Microsoft®
Making it easier

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TO THE EDITOR

Steve didn't cache in

As the publisher of Super PC-Kwik, we don't agree with Steve Gibson's November 30 column (page 29) on disk caches and the condition of the market.

The market has been changing, and pure speed is no longer the primary criterion in choosing a cache. We recognize that software disk caching technology is about as fast as is possible with the current PC architecture. Our customers now demand features such as broad compatibility, memory sharing and lending, easier to use setup and configuration, and support for a wider range of hardware such as removable drives. We have taken the position of being a bit slower as our default to protect data.

Has the market gone away? Hardly! Although it is true that users who purchase DOS 5.0 get a "free" disk cache, we believe that there will continue to be a market for advanced caches that offer the user the optimum combination of speed, compatibility, reliability, and features. Our record orders following our November release of Version 3 of Super PC-Kwik for DOS can attest to that.

Janice White
Product Manager, DOS Products
PC-Kwik Corp.
Beaverton, Ore.

LAN Server strengths

I think that Alice LaPlante's IS Profiles on the Federal Energy Regulatory Commission (November 30, page 54) provided an inaccurate picture of the capabilities of the IBM LAN Server. The analysis of the re-engineering effort at the FERC implied that IBM's Token Ring media was acceptable, but that the LAN Server system could not support more than 20 users on each server. This is incorrect. We have a sitewide network with 80 DOS machines using Token Ring and LAN Server 1.3 and have been very pleased with the performance and reliability of the system. We have run the network for more than two years with less than 2 hours of network downtime under heavy usage.

Steve Kullberg
Electrical Systems Manager
Chesebrough-Pond's USA Co.
Jefferson City, Mo.

Licensing update

We would like to clarify some of the information presented in your November 30 article "Software vendors move toward concurrent licensing," (page 50). Contrary to what the article states, concurrent licensing has been a part of Microsoft's application product end-user license agreement (EULA) since July 1991. Concurrent licensing is available for virtually all of Microsoft's application products. The license sets out the rules by which a customer may concurrently use the product on a network. Microsoft defines concurrent use as when one copy of a software product is accessed from a network server and used by two or more nodes or "workstations" on that network.

Many of our customers already make full use of this capability. Information about Microsoft's end-user license agreements or licensing policies is available from Microsoft customer sales and service at (800) 426-9400.

Craig Fiebig
Group Manager
Large Accounts Sales Strategy
Microsoft Corp.
Redmond, Wash.

Looking for New Age vendors

I agree with Stewart Alsop's September 21 column (page 4), which surmised that it is still premature for users to find a "new kind of vendor" to help customers build and manage distributed systems. Individually, vendors have developed extensive support for their user organizations — but it is seldom in the best interest of one vendor to address the multivendor, interoperability issues that have arisen from downsizing and client/server technologies.

Unfortunately, IS professionals need to resolve real-time interoperability issues today; they cannot wait for the evolution of a new kind of vendor.

To meet these issues, more than 30 user and vendor organizations have formed a nonprofit group — Open User Recommended Solutions (OURS). We are tackling the issues of multivendor education and environments. Task forces composed of vendors and users — including Novell, Chase Manhattan Bank, Microsoft, Levi Strauss, IBM, Pacific Gas and Electric, and others — are working together on these interoperability issues so that they can recommend solutions to the OURS membership and to the industry.

We believe that OURS' work will generate your "New Age vendors" because the results will clarify multivendor issues and recommend solutions.

Elaine R. Bond
President/Chair, OURS
Philadelphia

Blasted

We applaud the attention *InfoWorld* has given our industry in its first full-blown focus on PC sound and multimedia products (November 30, page 58). But we were not as delighted with *InfoWorld*'s assessment of our Sound Blaster Pro Basic audio card. We are, nevertheless, willing to take our lumps for substandard marks. Technology moves from generation to generation and, as most of your readers know, the Sound Blaster Pro Basic is the "grandfather" among all other boards tested.

We do, however, want to point out two mistakes. First, the audio board product comparison "grid" in the article identifies the "Creative Labs Multimedia Upgrade Kit" as the product tested. This was not the case. *InfoWorld* tested our Sound Blaster Pro Basic card, an 8-bit board with a suggested retail price of $229 when it is sold separately. It is only one component of the $799 Multimedia Upgrade Kit.

The other issue is even more important. Two extremely relevant factors were ignored in your product comparison. First, were the audio boards tested Sound Blaster or Ad Lib compatible? The point being, what good is even the best sound board if it can't be used with 95 percent of the software applications on the market? Second, why did the comparison ignore the relevance of DOS and OS/2? If this had been a review of sound cards for Windows, exclusively, this would not be an issue. But if you dismiss DOS and OS/2, you're dismissing the majority of PCs installed today.

As a final note, our new Sound Blaster 16 ASP (not shipping at the time of the review) rectifies all of the criticisms of our older technology.

Larry Samuels
Executive Vice President and COO
Creative Labs Inc.
Milpitas, Calif.

The new 16-bit Sound Blaster sounds interesting; we look forward to testing it. We apologize for any confusion caused by using the name and price of the product Creative Labs actually shipped to us. We did test only the Sound Blaster Pro Basic card portion of the upgrade kit, and we noted next to the price that it included a CD ROM drive.

Our scoring didn't consider compatibility as you define it because the 95 percent of software you refer to is entertainment software. We evaluated audio boards strictly for their suitability in business use. We focused on Windows because the emerging sound board applications for business are almost exclusively for Windows and other GUI environments. The fact that any OLE-compliant Windows application can now incorporate sound means the installed base of sound-enabled productivity applications is overwhelmingly Windows. — Editors

More than the network

In his November 30 Distributed Thinking ("*InfoWorld*'s mission: serving information systems pioneers," page 4), Stewart Alsop said that he wanted *InfoWorld* to increase its emphasis on networks.

I somewhat disagree. I think *InfoWorld* really should focus on an increased emphasis on distributed systems. This covers both the "classical" systems that you have covered in the past as well as the network issues. Also this should include client/server-related issues that are becoming a large part of the newer systems.

This is a much broader scope than simply saying an increased emphasis on networks and would be of much more benefit to those of us reading (and learning) from *InfoWorld*.

Garth Kennedy
Motorola Inc.
Schaumberg, Ill.

Please write to Letters to the Editor, InfoWorld, 155 Bovet Road, Suite 800, San Mateo, CA 94402; (MCI Mail: 259-4127; CompuServe: 73267-1537; Internet: Letters@InfoWorld.com). Letters may also be faxed to InfoWorld at (415) 358-1269. Please include your name, address, and daytime telephone number. Letters selected for publication will be edited for length and clarity.

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From the Editor / Ed Foster

Mission-critical LAN applications? You're looking at one

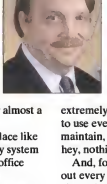
We talk a lot in the pages of *InfoWorld* about companies unplugging their mainframe and minicomputer systems and running their mission-critical applications on PC-based networks.

This week we can do a little more than talk, as the issue you hold in your hands is the first edition of *InfoWorld* produced entirely with our new desktop publishing system. The minicomputer-based publishing system we have used for almost a decade is history.

It may strike you as a little odd that a place like *InfoWorld* would have been using a legacy system this late in the day. While virtually every office and cubicle at *InfoWorld* has had a PC, a Macintosh, or both, they have had to share space with a dumb terminal that looks like it's right out of the '70s.

Yet it really shouldn't surprise you, because we aren't that much different from your companies. Replacing our old publishing system is small potatoes compared with the downsizing projects many of you are involved in, but from our point of view it's the most mission-critical system we have. If the paper doesn't get produced in a timely manner every week, we'll be out of business real quick.

So in our organization, we've had to deal with many legitimate concerns and a lot of stick-in-the-mud inertia in moving our production to a PC LAN-based system. We've had to worry about security, data integrity, application robustness, cross-platform integration, and a host of other



issues. And we've also had to deal with some recalcitrant individuals who have been irrationally fearful of parting with that old minicomputer.

Like me, for instance.

I've admitted this before; this whole project has scared me to death from the very beginning. I can't help but face this new glorious day in our publishing history with some real trepidation. Sure, our tired old minicomputer was extremely limited in function, hard to learn, hard to use even after you learned it, expensive to maintain, and virtually impossible to upgrade. But, hey, nothing's perfect.

And, for almost 10 years, it has gotten the paper out every week. That's why I've been so nervous about the new system. When something has proven reliable enough to do the job, you have to have some strong motivation to throw it away and go with something else. And, let's face it, we all know that PC networking — especially when it involves a heavy dose of PC-to-Mac integration, as our system does — is not yet a perfect science.

Of course, we do have some very compelling reasons for moving off the minicomputer. As a proprietary system and an aging architecture, it was locking us into a technological dead end. Eventually, we would have been completely cut off from the increasing advantages to be gained from better, cheaper color output devices, electronic transmission of formatted text and graphic images, etc. We have competition, too, and in the long run it would have been fatal to let our competitors get ahead of us in the use of PC technology in our business.

So, it was inevitable we would do this, but that didn't keep me from wanting a go-slow, cautious approach. When we began planning this system almost two years ago, I never really dreamed we would have it completely implemented by now. And that was fine with me, because I thought it would take at least a few years of design meetings, pilot programs, expert consultations, etc. until we were ready.

But, here we are. We've actually been publishing all but a few pages of *InfoWorld* with the new system for several months now, and none of my predictions of disaster has come true. Sure, it has plenty of kinks left to be ironed out, and in the wee hours I still wake up in the absolute certainty that I've just thought of a fundamental flaw we never considered. But when I talk to the folks who are really responsible for making our new system happen — Jeff DeBalko and Mark Houts in our systems department, and our managing editor, Bob Kayne — it always turns out that they've got it covered.

So, although I personally had to be dragged kicking and screaming into this new era, I'm glad to be able to say that *InfoWorld* has completed its own Enterprise Computing project. We are practicing what we preach, and we're proud of it.

But if something goes wrong, I just want everyone to remember that I told them so.

Ed Foster is editor of InfoWorld. He gets electronic mail at MCI account 397-4470.

Peer to Peer / Douglas E. Welch

It's been a good year, but there are still some blessings left to wish for

Douglas E. Welch is a support analyst with a major entertainment company in Los Angeles and a member of InfoWorld*'s Corporate Advisory Board.*

The coming year in computers is destined to make this one look like a stroll through the virtual park. The impossibly fast-moving computer industry appears ready to make a jump into an even higher gear. There are a few things, though, that could really give computer users (and vendors) a boost.

Sound digitizing and voice synthesis: Many new computers have built-in hardware to digitize sound, but there is a growing need for a good voice synthesis program. Audio books have shown how useful they can be in filling "lost" time, such as when you are stuck in traffic, and voice programs could do the same.

Integrated network management: Network managers are faced with a growing problem today. Every system on their networks uses a different program for setup, monitoring, and operating. LAN administrators must navigate a myriad of dissimilar systems just to perform simple account maintenance and troubleshooting. We need software that will allow all functions of a network to be managed from a central console. As new services are added to the network, their management functions could plug into the centralized software and be totally integrated. Network managers could then create network accounts, mail accounts, and gateway access, and provide other services all within one integrated management system.

Multiplatform software parity: Software manufacturers have finally started to develop major programs that operate on several different computer platforms and operating systems. Unfortunately, they end up playing software leapfrog as they release one version with new features before other platforms are available. This can lead to confusion and frustration when users can no longer easily transfer files among platforms. Manufacturers need to develop core technology that ensures new versions will be released for all platforms at the same time and with the same features.

In the era of PC price wars, software is still too expensive for many new computer users. What use is a cheap PC without software?

Simple microcomputer management protocol: Built into every operating system and piece of hardware, SMMP would allow managers to query all the computers under their control for system and software information. It would also provide the structure for automated updating of software and configuration information. With the growth in distributed computing, SMMP will provide managers a way to control all their resources and provide the best service possible.

Easy access to government data: Taxpayers have paid large sums of money to allow the government to collect large amounts of data. This information — like the census — should be accessible to anyone for little or no fee. One simple solution would be to use the centralized post office locations as data centers that could retrieve and distribute information for those people without computers. This would provide data access to all Americans and not just the privileged few who can afford the exorbitant fees that are currently charged by some information providers.

Low-priced software: In the era of PC price wars, software is still too expensive for many new computer users. What use is a cheap PC without software? Software manufacturers need to develop a series of low-cost solutions for home and small business users. Without such software, pirating will continue to be a major problem for software manufacturers as people find that pirating is the only way they can afford the software necessary to be productive.

National network: Through a combination of wireless, copper, and optical fiber methods, a national data network should be built. This network would allow easy access to personal data, company resources, and the huge amounts of data available on the Internet. Information is power, and a national network could be the power company that drives this country into the next century.

There is a new feeling in the air, new computers on the loading dock, and a new year knocking at the door. Hold on and enjoy the ride.

"Peer to Peer" gives readers a forum for discussing computing and management issues. Send submissions to Rachel Parker, Opinions Editor (MCI Mail 340-4371). Submissions can also be faxed to (415) 358-1269.

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HEWLETT PACKARD

From the Ether / Bob Metcalfe

Truth or dare: Who favors open systems?

Asking me to moderate a conference panel on open systems is a little bit like getting Madonna — the best-selling author — to officiate at your wedding. Or, well, maybe it's not.

Anyway, the User Alliance for Open Systems and the Corporation for Open Systems ([800] 759-2674) did assemble an impressive "Power Panel" of industry, user, and press biggies. And they did — inexplicably — ask me to taunt the panel for 2 hours in front of 200 attendees of their second annual conference. It won't make a best-seller, and they didn't take any vows, but there was amazing unanimity on the panel against immediate and dogmatic adoption of orthodox open systems protocol standards, particularly OSI and ISDN.

The purpose of the panel was to gain insight into the future of open systems and, if I read correctly between the lines, to reassess the Power Panelists' questionable commitment to open systems orthodoxy by watching them discuss their companies' strategic directions.

LIP SERVICE? Representing the computer industry were John Adams, DEC's vice president of systems networks; Vann Hettinger, IBM's director of networking software; Randy Meals, Hewlett-Packard's general manager of information networks; and Morris Taradalsky, Apple's vice president of enterprise systems.

From the networking industry, mixing data LANs and voice WANs, were John Hart, 3Com's chief technical officer; and Robert Kenedi, Northern Telecom's vice president of network architectures. (At this panel, NT didn't mean the next version of Windows.)

Last year, Power Panelists from industry told users that if they really wanted OSI and ISDN, they should *buy* them, and that their companies would also support older proprietary systems, as well as the unorthodox but burgeoning TCP/IP.

So this year I asked, "Are computer and networking companies still paying lip service to OSI and ISDN, or have they moved open systems from the backwaters of international and government activities into commercial strategic mainstreams?"

USER LIP SERVICE? Representing open systems users on the Power Panel were Dave Bittenbender, the Environmental Protection Agency's chief of telecommunications; and Bowley Moore, vice president of J.P. Morgan bank.

Computer companies, networking companies, and their users eschew open systems orthodoxy.

Last year, the User Alliance for Open Systems told the industry that "open" went well beyond OSI and ISDN protocols on up to Unix, SQL, and other application interfaces, including graphical user interfaces.

So this year I asked, "Are the corporate staffs of user companies still paying lip service to open systems while their line managers with budgets go on buying the proprietary and the closed?"

Irwin Greenstein of *Networking Management* and Sam Masud of *Government Computer News* hammered these and other questions home, getting what I think are remarkably consistent answers from our industry and user panelists.

THE MULTIPROTOCOL ANSWER. In short, computer companies, networking companies, and their users eschew open systems orthodoxy. People don't buy protocols, they buy applications. Even when they buy protocols, such as GOSIP (which panelists seemed to agree is a good idea), they may not use them. And even when they have good reason to use them — this point was well made by DEC's Adams, owing to the experience of DECnet's move to OSI — responsible migration of the installed base takes time. And *users* want it that way.

So what's the future of orthodox open systems? In short, multiprotocol networking — protocol coexistence, to support migration, and for its own sake.

IBM's Hettinger said it best: One protocol at a time — OSI, TCP/IP, SNA, or whatever — won't hack it. The goal is to choose applications and networking independently. And the major challenge to multiprotocol networking is the never-ending struggle called multiprotocol network management.

After our summary, I asked what big future symbolic event we open systems enthusiasts might work toward. The composite answer: for future Power Panels to exchange cellular multimedia E-mail anywhere in the world with the look and feel of each desktop system.

And then I asked why Microsoft and Novell were not represented on the Panel. They hadn't been invited. But next year, if there is another Open Systems Power Panel, it should probably be at Comdex.

Judging by your few responses, my open systems columns have in the past bored you. Did mentioning Madonna help this time?

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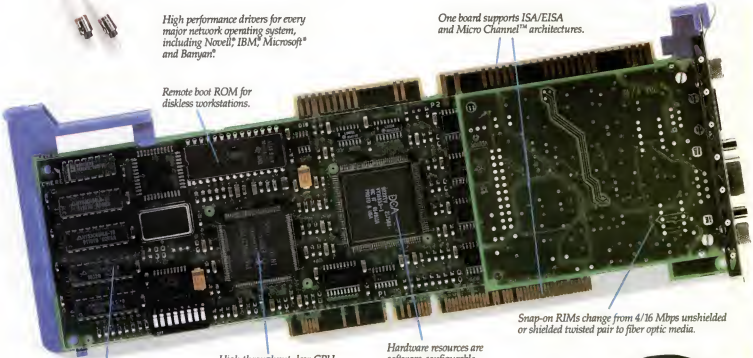

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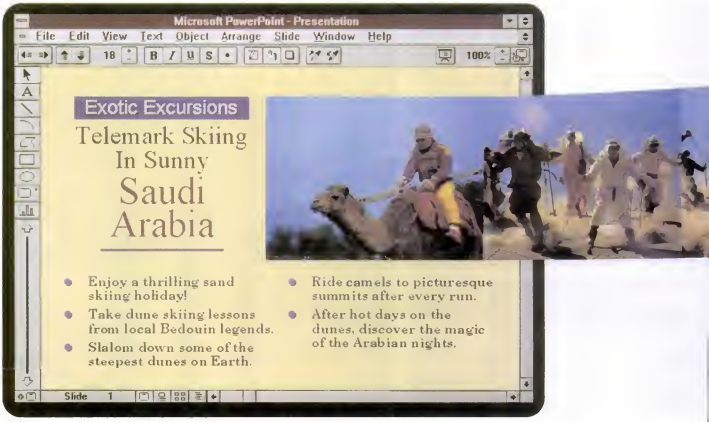

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BEN BARBANTE / INFOWORLD

System management

Taming those unruly networks

By Alan Radding

System management has always been the Achilles' heel of PC networking. When LANs were small and independent, controlling them wasn't so important. Now as organizations move serious production and decision support applications to PC LANs, it does matter — and vendors are scrambling to fill the void with management products.

New approaches and products already on the horizon promise to bring hostlike control to managers of distributed PC LANs. They include the Simple Network Management Protocol (SNMP) and its extensions, SMP and SNMP-2; a set of APIs from the Desktop Management Task Force (DMTF); extensions of IBM's SystemView/NetView to the desktop; and ultimately OSF's distributed management environment (DME).

The concept of network and system management is simple: collect information from each device on the network about what it is, what it is doing, and what has changed. In addition, give each device the capability to respond to instructions from a remote manager. The catch has been on agreement over what information is needed, the form it takes, and how it is acquired by the network manager. And the whole process needs to be done while consuming a minimum of network and system resources.

PINPOINT ACCURACY NEEDED. SNMP has helped managers get the network side of management under control, but it doesn't yet do much for the system management side of the effort where software, not hardware, is often the culprit. "When we troubleshoot the network, what looks like a hardware problem frequently turns out to be a software problem," says Karen Phillip, a network engineer based in Clinton, Md. "Somebody's software is not well mannered, say, in how it grabs an interrupt."

LANs have reached the point where they require the type of industrial-strength network and system management found in the mainframe environment. "Mission-critical applications cannot move to networks until network management is in place," says Tom Wood, senior industry analyst at the Business Research Group, in Newton, Mass.

Unfortunately, "The market for [PC LAN management tools] is a pigpen," Wood continues. "It is so unorganized that you don't know where to start." The tools available to manage LANs tend to be piecemeal solutions. There are tools that operate at the lower layers of the network protocol stack to analyze traffic over the wire and networking protocols. Similarly, there are other tools that gather and report management information from internetworking devices such as bridges, routers, and hubs. None of these gives the whole system-management picture or allows the manager to manage the entire network.

"We've got some tools that look at the physical layer, and we use some [protocol] sniffers that work at layers three and four," says Mike Avery, network analyst at the Texas Department of Human Services, in Austin. The agency operates some 440 LANs with more than 10,000 nodes and is currently looking at LANAlert NetWare by Network Computing Inc. (NCI), in Dallas, in hopes of finding a more comprehensive solution. NCI's LANAlert suite of products "will let us be more proactive rather than reactive," he says. It will also enable the department to set thresholds for performance at the server and respond to LAN performance degradation before users call. The agency's current set of tools really only help it find the problem after the network has broken down.

For example, when Avery tested LANAlert "it immediately came up with a cache alert. We needed more memory," he says. The department thought it was safe configuring file servers with 16 megabytes of memory and was surprised to learn otherwise. Avery has since boosted the standard configuration to 32 megabytes of memory and is able to avoid a number of problems.

DESKTOP MANAGEMENT. The major network operating systems have the potential for collecting, reporting, and acting upon information at the server level, but specific management applications are needed to fill in the functionality. Microsoft Corp., for instance, is releasing an application called Hermes, initially designed to provide remote software distribution and updating over the network. In the process of doing so, it can function much like a remote desktop system manager, consistent with SNMP and the DMTF protocols.

SNMP, on the other hand, works well for the management of internetworking devices but doesn't extend to the desktop and system management.

"The problem is I'm sitting here with wonderful technology but there are so many different ways to manage it," says Bill Bunch, system administrator at Stanley Fastening Systems Inc., in East Greenwich, R.I. His 300-node PC LAN runs the Vines operating system, from Westboro, Mass.-based Banyan Systems Inc., which includes a management function. "But it just gives me an instant snapshot of bad packets," Bunch explains. I don't get a long-term picture."

He uses Expose from Trellis of Southborough, Mass., to take the snapshots provided by Vines and build a graphical analysis. The company uses SNMP on its DEC, IBM, and Wang hosts, but not much SNMP information that is useful in PC LAN management gets to him. "The real problem is that no product gives us everything we need," he says.

MANAGEMENT DICHOTOMY. Part of the problem stems from a dichotomy that has long separated two sides of PC LAN management, network and system management. Today, however, network management and systems management are blending into each other. "When we asked people what systems management package they were using, they responded with a network management package, and vice versa," Wood says.

Traditionally, network and systems management have been separate disciplines. Network management has focused on the network links and the maintenance of a functioning highway. To that end, it deals primarily with the network interface cards, connectors, bridges, routers, and hubs. The goal is to maintain efficient traffic flow across the network. Network management focuses on the lower layers of the networking hierarchy.

Systems management, on the other hand, is concerned with the performance and behavior of the users' software and hardware and administrative issues. It starts with the file servers and extends to the users' desktops. System managers wrestle with hardware and software configuration management, the behavior of software, and administrative issues such as security, accounting, and software license management. The focus here is on the highest layers, such as the applications, in the network hierarchy.

This traditional division of management duties, however, is arbitrary and counterproductive. "It creates a user-unfriendly polarization that was never intended," says Tom Nolle, president of CIMI Corp., a Voorhees, N.J., technology consulting firm. "Users never wanted to manage individual components separately but to manage it all as one system," he says.

Host-based management systems such as IBM's SystemView/NetView bring both parts of management together but at a level far removed from the day-to-day management battles of PC LAN managers. These products still need distributed management tools and applications that will do the required data collection.

INCREASED RELIABILITY. The surging interest in client/server computing is forcing organizations to rethink the way they manage networked systems, reports Jeremy Frank, vice president of European telecommunications strategies at the Gartner Group, in Stamford, Conn. "Today people are happy with 99 percent LAN reliability," he says. But as organizations distribute serious PC LAN-based applications, 90 percent reliability won't be good enough. In fact, when organizations look at system and network management together, they will find LAN reliability is much worse than previously believed.

For example, a network manager in a large organization might report 100 problems with routers or broken circuits in a day, but, in truth, the organization "really is experiencing 1,500 problems a day with applications crashing," Frank suggests. "They just don't see where a user screws up a spreadsheet and crashes a server as a network management problem." When important client/server applications are at stake, this kind of performance will not be acceptable.

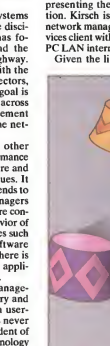
As expected, only the largest organizations with the largest PC LAN networks have gone very far in combining network and systems management, in part because of the cost and complexity of the task. "We have, basically, two sets of tools: [Novell NetWare] SPX diagnostics and SNMP tools," says David Kirsch, senior network consultant at CGI Systems Inc., in Wayne, Pa. He uses NCI's LANalert to track a multitude of server parameters and set a variety of alerts. His biggest complaint with all the existing tools is that although they gather data, they don't do a very good job of presenting the data as useful information. Kirsch is working on system and network management for a financial services client with a $35 million, 2,600-user PC LAN internetwork.

Given the limitations of the current tools, Kirsch's primary goal is fault management — being able to anticipate and identify problems with servers and internetworking devices. A secondary goal is capacity planning and performance management. Ultimately, he wants to extend control to the desktop, but the tools aren't here yet. "We want to be able to replace and modify standing application software, adjust memory and other variables in real time — see what goes in and out of the CPU."

Users have a long list of needs, starting with a single, integrated console, Wood reports. Today, users want a single console to manage everything from the movement of packets to the behavior of applications on the user's workstation.

A second key requirement is automation of the console. In a robust network management environment, the flow of information to the console is so enormous that it is virtually impossible to pick up every important indicator. Automation will allow users to set a hierarchy of thresholds where the system initiates increasingly frantic alerts as a situation progresses. Automation should also include automatic response to some problems, such as automatic load balancing on LAN servers.

REMOTE CONTROL. Ultimately, managers want comprehensive systems management tools that will allow them to identify and deal with problems before their users start calling with complaints. "I come in at 8 in the morning and get a call from a user complaining that the network is slow. But that caller just put some piece of software on his system. To fix it, I need something that will give me control of that software," Bunch says. He needs to be able to look into the user's machine, know its configuration, see how it is allocating memory or interrupts for various applications, and be able to make adjustments remotely. Managers also want both real-time, immediate information, and historical information so they can identify what is happening now and see trends over time.



All this won't come cheaply. Kirsch's client is spending about $200,000 on LAN management tools. Although it seems like a lot of money, the tools manage networks that process about $1 billion a day in financial transactions. "If I can save the cost of a couple of file servers by identifying bad distribution of services, we can justify the expense in cost-avoidance alone," he says.

"The average network management cost today is about 12 percent of the annual network budget," says Gartner's Frank. He argues that network management budgets as a percentage of overall network expenditures will have to double or triple in the coming years. With capabilities such as remote software distribution, however, the increased cost will be justified and partly offset by a reduction in the number of people needed to administer the network.

Until recently, however, sophisticated network management has not been a priority in many organizations. "You know what the most common network management tool is?" Frank asks. "Reboot the server." When there is a problem, managers feel they can do little more than shut down the entire LAN and bring it back up again. That may be OK for word processing, but it won't fly when the LAN is running client/server production applications.

Vendors are pursuing a number of approaches to provide more effective LAN management. A significant step occurred in October when IBM announced its LANfocus Management/2 set of products for OS/2 and AIX-based LANs. The products address system configuration, performance, and fault management. IBM is hitting all the current hot buttons with support for SNMP, the OSI-based Common Management Information Protocol (CMIP), and software distribution capabilities.

"The LANfocus announcement is significant, although the key is how much vendor support it gets," Frank says. If vendors support it, Frank expects managers to be able to put LANfocus software on any desktop device and plug it into the LAN, where it will be automatically configured and managed. Because it embraces standards such as SNMP, adds Frank Dzubeck, president of Communications Network Architects Inc., in Washington, the IBM solution will be more palatable to LAN managers who have steered clear of IBM's proprietary approach.

SNMP EVOLUTION. Today, SNMP is the horse to ride. "People have no choice but to start with SNMP," Frank says. The problem with SNMP is that it wasn't intended for the comprehensive management tasks being planned for it. "It is not robust enough. Its polling approach is very network intensive," Dzubeck explains. SNMP itself, however, is evolving into SNMP-2 and SMP, which make it more acceptable in its new role. Vendors such as Hewlett-Packard Co. (HP OpenView) and Sun Microsystems Inc. (SunNet Manager) are offering SNMP-consolidation environments that allow PC LAN managers to merge SNMP management information from multiple tools and manage SNMP devices from a single console.

The Desktop Management Task Force plans to use SNMP protocols to extend management to the desktop. DMTF calls for the creation of two application programming interfaces (APIs): one defining the creation of network management applications to access and control desktop components and the other to define how components are managed.

The catch here, Dzubeck notes, is the speed at which application developers will build management objects and applications to manage those objects using the DMTF APIs.

For PC LAN managers who want to do more, there is not a lot of good news for the short term. Better tools are coming, but they are not here yet. Still, there is enough available to get started today. Although the cost of network and system management will rise, the payoff in reliable network computing that better supports LAN-based production applications should make it worthwhile — and add to that the savings in the PC LAN manager's consumption of aspirin and Rolaids.

Alan Radding is a Newton, Mass., freelance computer journalist.

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Thinking of upgrading to a more powerful PC?

Think again. Tests indicate PC clock speed is a poor overall gauge of system performance

By Robert Butche
And Mikael Blaisdell

If you're thinking about upgrading your corporation's PCs to more powerful machines, you might want to think again. While everybody wants more raw speed and faster application processing, high-end PCs and add-on accelerator chips may not always deliver on their claims.

While upgrading to 486 PCs will mean greater profit for PC makers and dealers, faster processors don't always correspond to greater performance. In some cases, a faster CPU can actually decrease system performance.

PROCESSOR SPEED AND YOUR CHECKBOOK. Every year, millions of PC buyers fall prey to unsubstantiated, incomplete, or misleading PC performance claims. Nearly everyone in the PC business takes advantage of the widely held misconception among PC buyers that processor clock speed is directly proportional to program execution speed. It isn't.

Processor speed is meaningless as a criterion for appraising PC performance. Choosing a PC based on clock speed is akin to buying a new car based on the engine's maximum revolutions per minute. Like car engines, CPUs are power sources. The amount of power they deliver is constrained by the limitations of the other systems and devices to which they are connected.

The direct relationship between the CPU clock rate and performance went out with the 8086. Some manufacturers would have you believe that 486-class PCs are interchangeable commodities when it comes to function and performance. They aren't. System board design and quality are essential to PC performance, and every manufacturer has its own cost-performance, quality, and reliability criteria.

If you read the glitzy advertisements or ask sales representatives whether or not a 50-MHz 486 PC is always superior to a 33-MHz 486, an affirmative answer is inevitable, though not always correct.

In order to understand why buying a 50-MHz CPU may not necessarily get you 50-MHz performance, you need to take a careful look under the hood of that flashy new machine.

POTENTIAL VS. REALIZED. When you see an advertisement for a 50-MHz 486 PC, what's being sold is potential performance. When your purchase criteria is *realized* performance, not potential performance, the marketeers become strangely silent — with good reason. None of the PC systems measured in the last four years at Sofwin Laboratories, an independent hardware testing lab in Columbus, Ohio, could deliver 100 percent of the advertised performance. More than a third of the PCs measured fast year delivered less than 50 percent of advertised performance.

The Sofwin Electrical State Programming test loads the CPU to 100 percent capacity and measures how well it interfaces with the subsystems. These tests measure pure hardware performance — they effectively disable the internal cache on a 486 to simulate how the processor will interact with the PC under the most demanding conditions. Most standard PC benchmark tests rate hardware performance running suites of application software to simulate real-world performance. These tests do not always accurately reflect the performance loads that users place on their systems.

A 50-MHz 486 chip in a PC with only enough memory to perform at 25 MHz is simply not going to consistently deliver 50-MHz performance. The extra cost for the 50-MHz chip, like the extra CPU speed, may be wasted.

COMPUTE ENGINE. Realized performance represents the sum total of the PC — the CPU chip, memory, and support facilities. Although video, disk, and I/O functions affect overall software performance — depending upon how extensively these facilities are exercised by your software — PC board design, especially the memory system, ultimately determines how fast your software will run.

Recent Sofwin tests indicate wide performance variations between the best and the worst performing 33-MHz 486 PC systems in use today. All 486 systems are simply not created equal, even if they offer the same CPU chip speed. It may surprise you, but a well-designed 33-MHz 486 machine may indeed outperform a 50-MHz 486 PC, especially in high-demand applications. At the same time, replacing a 33-MHz 486 with a seemingly faster and more expensive 50-MHz 486 CPU may actually degrade the computer's performance instead of improving it.

To avoid buying the sizzle instead of the steak, you have to look beyond the advertising hype about processor performance.

SOFTWARE DEMANDS. Contrary to popular belief, PC processors are frequently brought to a complete stop in the midst of normal operations, waiting until the memory system can deliver a needed piece of information. This sudden stop is called a CPU stall, and to a large degree, such processor halts are governed by how fast the main memory system responds to the demands of your software's data manipulations. Just as some memory systems can respond faster than others, some software is more demanding on PC resources.

Software power demand, which constantly fluctuates even faster than the level indicators on a good stereo system, ranges from 0 to 100 percent of memory system capacity. When you exceed the capability of the memory system to respond, the fastest processor in the computing universe is exactly equal to the slowest — both are sitting idle.

In general, the wider the data path, the more complex the data manipulation and the more tasks run concurrently. Hence, more power is demanded of the CPU by the applications running. That's why the software power demand of stand-alone DOS applications ranges from about 2 percent to near 20 percent, whereas those same applications running under a multitasking system such as Windows may together demand upwards of 50 percent.

The longer the processor waits for cache update operations, the greater the decrease in overall performance.

When true 32-bit data widths are involved, such as Unix or Microsoft Corp.'s forthcoming Win32 or NT operating systems, the software power demand is significantly higher, as are the demands placed on servers and workstations. The software demands placed on network file servers, especially during high load periods, can average nearly 100 percent — swamping all but the best memory system designs.

Because software power demand is invisible and continuously changing, benchmark indexes of relative execution times are meaningless as indicators of available computing power. Here's why: Every processor instruction demands a precise measure of

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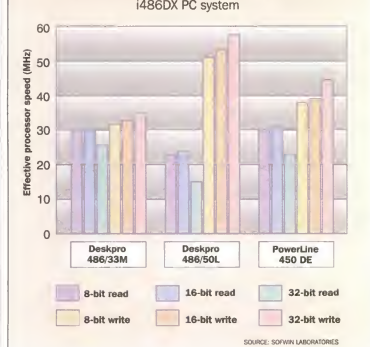

computing resources in order to execute. For example, instructions that can be executed entirely within the registers of the CPU and its own internal Level 1 cache don't place any demand on the downstream memory resources — they execute at the full rated speed of the 486 itself. But what about the other instructions, the ones that require fetching data from main memory? These may execute much more slowly because the processor stalls while waiting for the memory operations to be completed. Whereas the 486 is optimized for light loads, application software is made up of thousands or millions of individual instructions whose complexity and resulting demands on computing engine performance ebb and flow considerably.

Software that executes primarily within the 486 processor module, making little or no demand on system memory or support functions, is said to have low power demand. DOS and many noncompute intensive applications such as word processors are generally low power demand applications. However, software such as Windows, multitasking operating systems, EMM memory managers, and 32-bit applications belong in the high power demand category because they place heavy loads on main memory and support functions.

If you compare the execution speeds of a low demand application (such as a word processor), you may see a 25 percent improvement in execution speed between the 33-MHz Compaq Deskpro and the 50-MHz Deskpro. However, if a high-demand application is used for the test (such as a CAD package), the performance difference may disappear, according to Sofwin tests.

Keep in mind that all software occasionally places heavy loads on the computing engine. But Unix, OS/2, and Windows, due to their frequent task switches and more complex memory management schemes, place considerably heavier power demands on PC systems than typical single-user DOS applications.

PC POWER CURVES. The performance curve of PC systems with cached memory systems varies as memory activity increases because of a phenomenon known as cache system leveraging. To better understand the principle of cache leveraging, consider that although the CPU's internal Level 1 cache handles processor memory requests in a single clock cycle, memory cache systems impose wait state delays for cache misses that range from a half dozen to as many as 46 clock cycles.

The longer the processor is stalled waiting for cache update operations, the higher the cache system leverage and the greater the decrease in overall PC performance. For example, highly leveraged system designs, such as the 50-MHz Compaq and Dell systems reviewed for this article, realize a significantly smaller percentage of raw processor potential. Tests indicate that as data width increases, so do power demands on the PC computing engine. As power demand is increased, slow memory performance stalls the 486 processor for longer periods of time. The waste can range from 3 percent to 90 percent of the PC's computing power.

RUBBER MEETS THE ROAD. Word processing is a very common application on most PCs, and in normal operations it has an average power demand of less than 10 percent of the overall system's capacity. However, the peak demand, experienced when performing operations such as transferring files to and from disks or networks, sometimes reaches 100 percent. When you consider that, at 50 percent load, the performance of both the 50-MHz systems tested for this article is less than that of the 33-MHz system, you might begin to wonder what the extra price paid for that 50-MHz system really bought. The answer is unfortunately simple: more heat in your system enclosure.

While the 50-MHz systems produce higher numbers on benchmark tests, the better design of the 33-MHz system provides about a 20 percent speed advantage when performing real work. It also costs a lot less. None of the 50-MHz 486 or 33/66-MHz 486DX2 systems measured by Sofwin Laboratories in 1992 offered higher 32-bit computing performance than the better 33-MHz 486 systems. About half of the 50-MHz and DX2 systems provided about the same level (plus or minus 5 percent) of performance at 16-bit operations as the 33-MHz PCs while costing much more.

The PC models discussed in this article were chosen because they represent some of the better designed, higher-quality PC systems available today. The same points, however, can be made using any number of other systems.

BEYOND BENCHMARKS. It is unfortunately true that the relentless price pressure of the PC market has motivated some PC designers to cut costs by choosing cheaper components and systems that tend to favor light load performance — as is typical of DOS benchmarking tests. It's not uncommon for DOS benchmarks to reflect little difference in performance between good and poor PC system designs. This is because the typical unscientific benchmark falls in the low range of the software power demand curve, requiring only 2 percent to 5 percent of the CPU's potential power. As a result of their low software power demand, such benchmarks run almost entirely within the confines of the 486's own internal Level 1 cache and give no indication of how the PC will perform under real world operating loads that exercise the main memory system as well as the processor.

It's well to keep in mind that benchmarks are indexes of program execution speed for software whose space and power demands are unknown. As a result, benchmarks tell you little to nothing about the performance capabilities of the underlying hardware.

SHOP FOR PERFORMANCE. Corporate and government PC managers are becoming increasingly aware that benchmarks, brand name, price, processor speed, and cache memory size are not meaningful indicators of how well 486-class PC systems will perform under existing DOS applications — let alone the demands of future OS/2, Unix, and Win32 applications. Those equipped with the proper tools and a little knowledge of what to look for are already finding that they can often purchase a higher power PC for less money, not more.

In the library of the IBM Forum on CompuServe, there is a downloadable utility package called SOFPAK.ZIP that contains a set of basic performance analyzers utilizing the electrical state programming technology from Sofwin. The package contains four utilities, Sofengin, Sofcache, Sofvideo, and Sofdisk, that can be used to exercise the basic components of a PC. The main utility, Sofengin, measures the 32-bit performance of 486 machines and reports the realized performance and a letter grade.

IS directors and PC managers who require more detailed performance analysis tools may contact Sofwin Laboratories at (800) 289-7639. The company manufactures two sophisticated performance analyzer packages, PC-Measur and PCAudit, that can be used to extensively analyze and record PC system architecture information and detailed memory performance data.

Robert Butche is chief technical officer at Sofwin Laboratories. Mikael Blaisdell is an Alameda, Calif., consultant and writer.

SYSmark shows speed correlation

By Kevin Strehlo

The *InfoWorld* Test Center's experience running PC performance benchmark tests indicates that clock speed is a reliable prediction of computer performance with 486 systems. While Sofwin measure theoretical performance, *InfoWorld*'s own tests focus on real-world applications.

InfoWorld uses the BAPCo SYSmark92 tests developed by an industry consortium of testing laboratories and software and hardware vendors.

The tasks that make up the SYSmark92 were determined by an extensive survey of the software usage of a range of corporate end-users.

SYSmark consists of a suite of widely used business applications including word processor, desktop graphics, database, spreadsheet, software development tools, and desktop publishing. Thus, the word processing section uses Word for Windows and WordPerfect 5.1 for DOS to create, edit, and print real documents in a mix that reflects actual corporate word processing patterns.

The overall SYSmark is a composite of those subsets, weighted according to the sales levels of each application area.

As a baseline, BAPCo arbitrarily selected a vanilla 486 33-MHz machine and assigned it a performance value of 100.

For the 16 PCs based on 66-MHz 486s that the *InfoWorld* Test Center has benchmarked, the SYSmark92 ranged from 130 to 181 with an average of 155.40.

For the nine PCs based on 50-MHz 486s, the SYSmark92 numbers ranged from 113 to 163, with an average of 133.75.

For the 12 PCs based on 33-MHz 486s, the SYSmark92 numbers ranged from 92 to 114.

The very fastest 33-MHz machine we've tested was slower than all but one of the 50-MHz machines. There was more overlap between the 50- and 66-MHz machines, but that's expected because several of them use DX2 chips, where the underlying memory and bus subsystems are driven by a 33-MHz clock with the CPU rate doubled.

Although the Test Center's experience shows that clock speed does not predict performance in a linear fashion, that is expected because of the contributions of memory, disk drive, and video subsystems to overall performance.

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IS Profiles / Alice LaPlante

North Carolina legislature mandates computer systems overhaul

I usually write about commercial businesses in this column and the benefits they reap from the effective use of PC and LAN technologies.

It's a given that the most effective and profitable companies are rapidly downsizing their legacy applications to more flexible and economical platforms that will meet their evolving business needs for some time to come.

I'm starting to see a similar trend among nonprofit organizations as well. Nonprofit groups are moving to client/server architectures with the same or greater urgency as commercial ventures.

In fact, the North Carolina state legislature recently passed legislation requiring the state government to re-engineer its entire computer infrastructure.

And the architecture of choice is — you guessed it — client/server.

The legislation came about as the result of a governmentwide audit that clearly showed the state lagging behind in several key areas — information technology among them. The problem was one of coordination. There was no single person acting as the chief information officer. IS control was highly decentralized and it was difficult to get the various departments to collaborate on governmentwide IS development projects.

"Information technology and telecommunications have become a much more important and strategically necessary part of state government, yet neither our technical architecture nor management structure had progressed much in the last 10 years," says Tom Runkle, deputy state controller for information resource management. Runkle is, in effect, the state's CIO, having been appointed this past March. Prior to taking this post, he was an MIS director at a state agency. So Runkle is imminently well suited for his current post and is aware of the problems of coordinating massive statewide projects among multiple agencies.

GROUND ZERO. The state's various IS departments suffered from cost escalations, inefficient management, and legacy systems that were no longer meeting current organizational requirements.

The state legislature realized that in the information age, this clearly was an unacceptable situation.

The first step toward curing these IS ills was an efficiency study to pinpoint bureaucratic and management bottlenecks. Once the problem areas were identified, a series of steps were outlined. These included the restructuring of the IS management process; development of a statewide technical architecture based on client/server concepts; and the acquisition of CASE tools to help in the rapid deployment of client/server applications.

The North Carolina General Assembly enacted a number of legal changes to the way technology is managed. This resulted in the creation of the Information Resource Management Commission (IRMC), which reviews all IS acquisitions, practices, and policies. With a clearly defined legislative mandate, the IRMC is a powerful body that has broad administrative powers to perform major restructuring, Runkle says.

In addition to the IRMC, the state assembly established three boards to help advise the IRMC. The first is the IRM Advisory Board, made up of senior government leaders who will help define the organizational goals of re-engineering. Next is the State Information Processing Services Advisory Board, which consists of all departmental IS managers within the state. They deliberate on technical and strategic issues. Finally, there's the Governor's Committee on Data Processing and Information Systems, which consists of top IS managers from corporations around the state.

APPARATUS IN PLACE. The first major undertaking of this new management infrastructure will be the creation of a statewide client/server architecture. A systems integration lab is currently being built that will help potential users from different state agencies become familiar with client/server concepts, Runkle says.

To date, two major pilot projects are under way. The State Computing Center is updating a statewide accounting system that ran on an ancient IBM minicomputer no longer serviced or supported by the vendor. The replacement platform consists of LANs deployed throughout 40 state agencies, some of which process more than 100,000 transactions per month, Runkle says. Eventually, on-line access will be provided between the LANs and the mainframe-based general ledger system. This will give PC users at any state agency real-time access to accounting data.

North Carolina re-engineers computer architecture

- State assembly mandates total restructuring of state's IS infrastructure
- Forms the Information Resource Management Commission
- Also creates advisory boards composed of state agency heads, government IS managers, and industry advisers
- Plans massive downsizing from inefficient legacy systems
- Outlines client/server implementation
- Embarks on key pilot projects
- Retrains IS workers to effectively implement LAN solutions

The second pilot is being implemented at the Department of Transportation. A Construction Management System is being developed to track all repairs, estimates, payments, and testing for all state, county, and local roads.

Steve Arrants is MIS director of the Department of Transportation and is overseeing the Construction Management System development effort.

"We had a 20-year-old host-based system written in assembly language," Arrants says. There were significant problems with the system, chief among them was the retirement of the head architect. The IS staff was struggling to understand the code and make the necessary fixes.

In addition, the host system was straining under the weight of new department requirements. The assembly passed legislation in 1986 mandating the construction of four-lane intrastate highways. "The legislation basically doubled the volume of our construction work and the number of contracts we had to administer. Our system simply couldn't handle it," Arrants says.

In the spring of 1991, a design effort began to formulate a client/server architecture for the project. OS/2 2.0 was chosen for both client workstations and back-end servers. IBM's LAN Server was chosen for a network of LANs encompassing 55 locations throughout the state. The server and workstations would also be connected to an IBM host DB2 database, where most of the data would reside. "In effect, this is a multi-tiered client/server architecture," Arrants says.

> **Information technology has become a much more important part of state government.**
>
> *Tom Runkle*

A primary job was selecting a CASE tool, because rapid application development was essential. Runkle knew that state programmers couldn't do it without productivity tools. After extensive testing and prototyping, North Carolina chose Foundation for Cooperative Processing, from Chicago-based Andersen Consulting. Foundation was the only tool set the state found that supported both OS/2 and DB2 environments.

To date, the state has invested $1 million in the tools and training. The applications developed will eventually support over 200 LANs, 100 developers, and 2,500 end-users.

Arrants manages 47 developers and admits the process of understanding a new architecture, learning a new programming language, and grasping GUI design was a tremendous challenge. He essentially put his staff through an intensive re-engineering "boot camp." Most of his programmers had previously only worked with character-based 3270 programming. "Given the huge learning curve, there's no way we could have done this without a CASE tool," Arrants says.

Development started in October 1992. The pilot will begin in April 1993, and the final enterprise system should be installed by October 1993, he says.

If the Arrants team is any indication, the North Carolina IS workers are taking to the new architecture quite well. "They simply love working with a GUI design and workstations," Arrants says. "The excitement is palpable."

LAN DECISIONS. The state has yet to decide upon an organizationwide LAN architecture. The transportation department project, for example, will use Microsoft Corp.'s LAN Manager and Token Ring media. It's likely that OS/2 will be the operating system of choice for both clients and servers, Runkle says — although Windows is still under consideration on the client side, and NT and Unix are being evaluated for the server side of the equation.

The LAN architecture will be decided in 1993. In the interim, a LAN administrator certification program has been developed in conjunction with the Office of Continuing Education at North Carolina State University. The program is designed to aid in the development of the necessary support skills that will be required by state agencies as LANs are put into more widespread use.

SUPPORTING THE EFFORT. Funding hasn't been as much an issue in this effort as you might think.

"We're fortunate in that the recession has not been a major disruption for North Carolina," Runkle says. "Our economy didn't grow much, but we didn't experience a downturn." As a result, although government cost-cutting is usually considered a good thing, the need for a new IS architecture resulted in adequate funding without too much wrangling, he says.

Moreover, as North Carolina looks ahead to a more hopeful economic scenario in 1993 and beyond, the state realized that to position itself for growth, a revamping of the technology infrastructure was essential.

"Our cost pressures aren't the typical cost pressures. We don't anticipate running out of funds, but we do see that we are losing jobs in our two major economic areas, which are agriculture and textiles," Runkle says. The state realizes it needs to replace them with more efficient, leading-edge industries and corresponding worker skills in the area of high tech, he says.

"We're the 10th most populous state in the country, and we're projected to hold that position through the end of the century," Runkle says.

With a budget of $13.4 billion, the government of North Carolina is both the biggest business in the state and the largest employer.

If North Carolina's early re-engineering success is any indication, it will clearly lead the way in moving the state's economy into the information age.

Alice LaPlante is a Palo Alto, Calif.-based freelance writer and an InfoWorld *contributing editor.*

Help Desk / Brett Glass

PC users have choice of Opti, VL-Bus, and PCI local buses

Q How many types of local buses are there for the PC? What are the differences between these buses?
Eric Duncan

A All local buses perform essentially the same function: providing a fast, wide, direct pathway between a peripheral board (usually a graphics card or disk controller) and the host CPU. I know of three local buses that are of interest to PC buyers. The first is the "Opti" local bus, created by motherboard chip set vendor Opti. This bus was used on the majority of local bus motherboards, including Orchid's Superboard series, before other standards arose. I've been experimenting with Orchid's boards and have found them to deliver blindingly fast graphics in AutoCAD and nearly acceptable performance in the sluggish Windows environment. Peripheral boards built for the Opti local bus look confusingly similar to EISA boards; in fact, they fit into a slightly modified EISA socket. The Opti local bus isn't the best choice for the long haul but may be worth considering for immediate purchases due to good support from many well-known peripheral vendors.

The second and most popular standard comes from the Video Electronics Standards Association (VESA). The VESA Local Bus, or VL-Bus for short, uses a Micro Channel socket positioned in front of the machine's normal ISA, EISA, or Micro Channel connector. VL-Bus is a nonmultiplexed bus whose signals are essentially the same as those found at the pins of a 486DX microprocessor; however, it can work with 16-bit peripherals and will be extended to 64 bits in the near future.

The third and most recent local bus standard is Intel's Peripheral Component Interconnect (PCI). Unlike the others, PCI was not originally intended to support peripheral cards in sockets. Rather, it was designed as a way to connect chips that were soldered onto the motherboard. However, in response to demand from board manufacturers, a specification for a PCI socket was drafted and is now circulating. The spec should be finalized in early 1993, with conforming peripherals to ship in the middle of next year. Intel says the PCI bus, which will use a connector situated *next to* an ISA, EISA, or MCA socket, is more processor independent than VL-Bus and has provisions for power-saving notebook applications. However, other chip vendors fear that it contains proprietary traps that will help Intel.

Michael Slater, *Microprocessor Report* publisher, says PCI and VL-Bus make different engineering trade-offs but run nearly a dead heat in performance. This is unfortunate, because without a clear winner, these buses may split the market, reducing economies of scale and raising prices. Nonetheless, IBM PC users should think their lucky stars that there will be only two major contenders. Macintosh users face more severe compatibility headaches, as Macs without NuBus have different local bus slots in nearly every model.

Q Could you tell me how to use DR DOS' SID to input the utility programs published in *InfoWorld* and *PC World*?
Sergio Zalaya

A In my June 24, 1991, column (page 110), I published a patch that allows the Debug program from DOS 3.3 to work with DR DOS. (If you don't have that issue, the patch is available as the file DRDBUG.TXT in Data Library 2 of CompuServe's DR Forum.) Unfortunately, more than 18 months later, Novell has not updated the SID (Symbolic Interactive Debugger) program to be compatible with Debug. Therefore, the only way to use these utilities is to install the patch or to run your Debug scripts on a Microsoft DOS PC.

Brett Glass' Help Desk answers readers' business computing questions. Brett cannot answer questions personally. Readers can leave questions by calling (800) 227-8365, Ext. 702, or by messaging CompuServe (72267,3673) or on the Internet at Brett_Glass@infoworld.com.

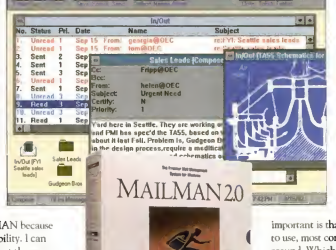
MAILMAN 2.0
E-MAIL FOR BOTH SIDES OF YOUR BRAIN.

Hey, as the creative side of this brain, I love the fact that MailMAN makes e-mail easy. With its Windows interface, it lets me compose, edit, send, store and retrieve messages in seconds. Talk about instant gratification!

Let's look at this analytically, shall we? What makes MailMAN unique is that it's a true client to the native e-mail transports offered by leading LAN suppliers, such as Novell and Banyan. In fact, MailMAN is the first true open mail client. Now users can take full advantage of the integration of the mail store, directory services, mail transport and supported gateways within the network operating system. Very logical.

That sounds wonderful (whatever it means). But I like MailMAN because it gives me so much flexibility. I can view a bunch of messages at the same time, and "cut and paste" to compose an answer. Plus, I can launch and work with other applications while still in MailMAN... and even send mail and documents from other Windows applications on the fly!

Well, MailMAN is certainly an outstanding productivity tool. Users report that it saves the average employee five to ten minutes a day. If we multiply that figure by the total number of users, then multiply again by the total number of workdays...



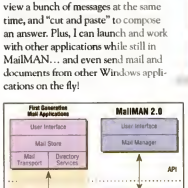
Enough math! All I know is that MailMAN lets me share my brilliant ideas with everyone in the company. It has the directory browsers, auto application launching and drag and drop message filing I want on my desktop.

I'm a happy camper.

You must be referring to MailMAN's support of NGS directory services, such as those in NetWare Global Messaging. As well as its bi-directional DDE capability and multiple folder support. And you've yet to mention MailMAN's extended mail options for archiving, forms and routing, filtering...

Okay okay, you've made your point; MailMAN is great technology. But what's really important is that it's simply the easiest to use, most complete mail package around. Which is why people should be dialing 1-800-MAILFLO today for more information.

Now you're using your head.



Unlike other e-mail solutions, MailMAN 2.0 is a powerful "point and click" Windows mail management system that is integrated with the mail store, directories, and mail transport services developed and supported by your network operating system supplier. MailMAN 2.0 delivers the full power of your network and ease of use!

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There's no doubt the competition has made some inspired design changes lately. We just thought you'd like to know exactly what inspired them.

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ERS. PAGES AHEAD.

New Age IS / Cheryl Currid

Techie toys to provoke discussion, improve office productivity

So, you've still not found the right toys for your favorite techies? Better hurry. Time and funds are running out.

If you've been following along the past few months, you know that I am still looking for computing toys that are fun to use and have a redeeming business benefit. The value to the individuals and the organization can be educational, inspirational, or productivity enhancing. This week I have a potpourri of gadgets and gizmos that have lots of potential.

Some of the most innovative products I've seen this season come from Paper Direct in Lyndhurst, N.J. ([800] A-PAPERS). This company doesn't produce computers, peripherals, or software. It distributes great-looking paper for proposals, reports, cards, and letters, and some nifty office gadgets, too. The PaperStation, a $495 document finishing system, can serve as a professional binder, a sign maker, and a laminator. It's super for knocking out a few reports, folders, or professional labels, or even laminating luggage tags.

Paper Direct also sells a $199 automatic three-fold machine. This small desktop folder lets you fold business letters, memos, or flyers in seconds. These are great departmental tools for any group that does desktop publishing or wants to produce high-quality business materials inexpensively.

Speaking of publishing on the cheap, you can take desktop publishing to new heights with ZSoft Corp.'s low-priced PhotoFinish 2.0 ([404] 427-1150). This $199 Windows-based package lets you cut, crop, change, enhance, or filter scanned-in images or its own library of photographic images. And you don't have to be a trained graphics artist to use it. PhotoFinish's easy-to-use tools let mere mortals (like me) get creative.

For people who have problems getting their thoughts down through their fingers, provide a jump start: WordStar International Inc.'s Correct Letters and Correct Quotes for Windows. Both are innovative Windows utilities. Correct Letters gives you 100 sample business letters — everything from a sales follow-up to several different ways to say thank you. These letters can be cut and pasted into a Windows-based word processor, then edited to suit your own taste and personality. Correct Quotes gives you great quotes on just about any topic. Or, if you'd rather, you can just find quotes from your favorite author.

In addition to the technical books I recommended last week, be sure to grab a few management books for the library. Tom Peters' new *Liberation Management* (Knopf) is worthwhile holiday reading. Peters' predictions about management philosophy have been pretty good in the past, and no doubt CEOs will be trying out some of his pointers in the future. It's a good idea for the IS staff to read books like this so you aren't blindsided when the CEO takes a sudden sharp right. Peters' other books, *In Search of Excellence* and *A Passion for Excellence*, are also good reads during quiet days.

Also take a look at William Davidow and Michael Malone's *The Virtual Corporation* (Harper Business). There are more than a few pointers inside its covers to get some spirited discussion going.

Finally, if you can still find a copy, grab Harvard Professor Shoshana Zuboff's *In the Age of the Smart Machine* (Basic Books). Zuboff documents some much-needed but little-discussed issues that come up when people have to change their work behavior and corporate culture to adopt information technology. She might not have all the answers, but she hits on some of the stumbling blocks people face when they have to change.

Tune in next week as Currid's countdown to Christmas continues. (And, for those of you who have sent me ideas for stocking stuffers — thanks! Currid's toy shop is chock full, but we keep finding room for more innovative products.)

Cheryl Currid, president of Houston-based Currid & Co., focuses on helping clients assess, apply, and organize for new information technology. Her CompuServe address is: 75300,2660.

LEARNING TO SHARE IS HARD

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Most LAN managers know that modem sharing is cost effective. But they're reluctant to invest in a dedicated gateway, for fear of resistance and confusion among users. The MultiComAsyncGateway™ can get users accustomed to communications via a modem attached to another PC, without spending thousands on a full-blown gateway.

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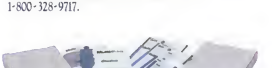

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REVIEWS

QuarkXPress 3.1 makes move to Windows

Top Mac desktop publisher offers PC users same layout, typography, and color support

By Mike Heck Review Board

The Windows version of the successful QuarkXPress 3.1 for the Macintosh has arrived. Now the Windows market is heating up again. Aldus PageMaker is the predominate PC desktop publishing package — thanks to miscues with Ventura Publisher's early Windows versions and the late entry of QuarkXPress for Windows. Ventura 4.1 is here, and PageMaker 5.0 should should be available in early 1993, matching many XPress features such as expert kerning, built-in color separations, and text rotation.

XPress 3.1 for Windows mimics its Mac counterpart's interface, precision type and layout tools, and superior color support. Thus, it should quickly find a home in many design studios. However, XPress lacks long-document features, such as indexing, that are included with Ventura Publisher. Although you can enhance XPress with XTensions to fill these gaps, right now only five add-ins are ready for the Windows version.

This review is based on criteria that we developed for our last product comparison of high-end desktop publishing software (August 3, page 60).

FEATURES:

Like the Macintosh version, QuarkXPress 3.1 for Windows lets you position text and graphics frames with amazing accuracy — down to 0.001 of the desired measurement system (inches, points, picas, centimeters, millimeters, or ciceros). The program displays multipage spreads surrounded by a pasteboard, so it's easy to move elements around when experimenting with designs.

XPress offers movable tool, layout, measurement, library, color, style sheet, and trap palettes; these provide an interactive way to adjust features, such as type attributes. Another XPress hallmark is flexibility. Irregular shapes hold photos and graphics, which you can enhance with color tints and halftone patterns. XPress also lets you modify kerning and tracking tables for producing extra-precise character spacing. You can also perform manual kerning.

The program's libraries store type and graphics, and up to 127 master page formats let you mix layouts within the same document. XPress also features numerous automatic page composition commands, such as those for automatically duplicating and spacing graphics.

PERFORMANCE:

Layout capabilities: XPress provides outstanding control over graphic and text placeholding boxes; they can be rotated up to 360 degrees in 0.001-degree increments. When you start a new document, you can automatically flow text into columns — or you can import text into individual frames by connecting them with the link tool.

REPORT CARD INFO WORLD

HIGH-END DESKTOP PUBLISHING SOFTWARE

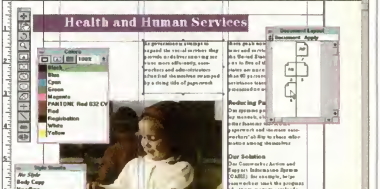
QuarkXPress for Windows

VERSION 3.1

Criteria	(Weighting)	Score
Performance		
Layout capabilities	(100)	Excellent
Text handling	(85)	Good
Typography	(85)	Excellent
Graphics creation	(35)	Very Good
Graphics manipulation	(80)	Very Good
Import and export	(65)	Very Good
Speed	(50)	Very Good
Output capabilities	(50)	Very Good
Documentation	(75)	Very Good
Ease of learning	(75)	Very Good
Ease of use	(100)	Good
Support		
Support policies	(50)	Satisfactory
Technical support	(50)	Very Good
Value	(100)	Very Good
Final score		**7.6**

PRODUCT SUMMARY

Company: Quark Inc., in Denver, can be reached at (800) 788-7835 or (303) 934-2211; fax: (303) 894-3399.
List price: $895.
Requires: 386-based (or faster) DOS-compatible PC; Windows 3.1; 4 megabytes of RAM; Windows-supported PostScript printer with 2 megabytes of RAM; VGA display or better; hard disk.
Pros: Superior type quality and control; precise graphic positioning; fantastic color layout tools plus built-in separations.
Cons: No long-document capabilities; few XTensions compared with Macintosh version.
Summary: A versatile layout program that faithfully implements the precise layout tools of XPress for the Macintosh. On-screen palettes contribute to easy operation, and color options should meet demanding requirements.



Like the Macintosh version, QuarkXPress 3.1 for Windows features easy-to-use palettes that simplify a majority of your tasks.

The pasteboard, which can equal the document's width (the maximum width is 48 inches), helps you temporarily assemble photos, graphics, and text; this feature is also useful when creating bleeds. You can set the pasteboard's size and many other preferences — such as how close an object must be before it snaps to page guides — for the current document or all new documents.

Another XPress strength involves document formatting. The document layout palette lets you create master pages, relocate existing pages, and insert new pages that conform to the design of any master page. For instance, inserting pages to construct a multipage spread simply involves positioning page icons side-by-side. You can also change page sequence using dialog boxes or by dragging thumbnail layouts. You can accomplish this in any view, but the thumbnail view lets you see the most pages at once on your screen. Additionally, the reduced thumbnail view gives you the capability to move text and graphics directly from one page to another.

You can drag ruler guides anywhere on the page to keep elements in alignment. Other time-saving layout commands control the stacking order of frames, anchor text, and picture boxes. Like the Mac version, XPress for Windows' precision layout capabilities are tops. We rate layout excellent.

Text handling: XPress has a main 120,000-word dictionary that checks the spelling of words, stories, or entire documents. There are also auxiliary dictionaries that hold unique terms and phrases. You can easily add hyphenation exceptions and edit auxiliary dictionaries. Robust hyphenation and justification methods control how lines break — and define optimum word and character spacing.

XPress lets you locate and change text and text attributes, and style sheets apply more complex formats such as drop caps. Styles include options that avoid orphan and widow lines, as well as paragraph formats, such as indents and spacing. However, there is no capability to handle outdents or automatic bullets, as there is in Ventura.

XPress lets you enter and edit text directly, and it recognizes style information embedded in your source word processing document from Microsoft Word for Windows 1.x and 2.0, Lotus Ami Pro 2.0, WordPerfect 5.1 for Windows, and any RTF file with formatting. XPress will recognize character formatting for other formats. You can automatically number pages and sections and custom-position headers and footers. But XPress lacks footnoting, index generation, or table of contents functions. XTensions for such features will be ported over to the Windows version, but they aren't available yet. We rate text handling good.

Typography: XPress handles font sizes from 2 to 720 points in 0.001-point increments. You can kern and track text to 0.00005 of an em space — a straightforward, interactive process via the measurement palette or using keyboard commands. A special option lets you define a flexible space as a portion of a

INSIDE REVIEWS

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HSC Interactive 86
Action for Macintosh, Windows 87
Guide to reviews 96

OUR COMPUTERS
TO OUTLAST MOST CO

Pick up a paper and you'll no doubt read about another PC company on the brink of collapse. Does it matter? Not much. Unless you're stuck with a computer that's out of commission from a company that's out of business.

In the 80's, it seemed every time you turned around a new computer company opened up. For a while it looked like all you needed was a soldering iron, a toll-free phone number and a P.O. Box to get started.

Those days are over. The market has matured. Customers are demanding more. And clone companies are faced with an ugly reality: the less you know about making computers, the less likely you're going to be successful at it.

Writers in the press and financial analysts on Wall Street are even compiling lists as to which are about to go under. While all of these involve an amount of speculation on the part of their authors, you may be surprised to learn that many of the larger clone companies appear on the majority of them.

It is not a question of whether it will happen. It is only a question of when.

All of which means that choosing the right computer company has

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ARE ENGINEERED
MPUTER COMPANIES.

become every bit as important as choosing the right computer. It is no longer enough to compare price, product specs, service and support and then come to your decision.

After all, a company can promise all of the service and support in the world and it won't much matter if their toll-free line has been disconnected.

Which is why, as one leading trade publication puts it, "Planning ahead for more COMPAQ systems has rarely looked more prudent."*

Because not only are our computers some of the best designed and best engineered in the world, we're also successfully positioned for the future. In fact, the introductions of our affordable computers—the COMPAQ ProLinea, DESKPRO/i, Contura and ProSignia—were the most successful in our company's history.

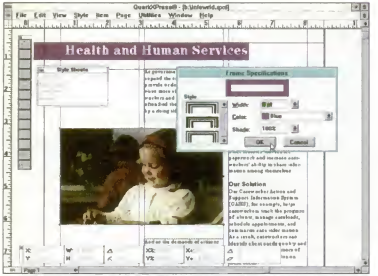
So next time you consider buying a PC or PC Server, consider COMPAQ. That way you'll get a computer that you can count on. From a company that you can count on.

For more information, call 1-800-345-1518 in the U.S., and in Canada, call 1-800-263-5868.

With their current credit and cash flow problems, buying computers from financially vulnerable clone companies has become something of a gamble.

Though this one's on display in our Houston offices, some of the first COMPAQ PCs are still being used. Obviously, our PCs are designed to be around a long time. So is the company.

COMPAQ



QuarkXPress offers various frame border specifications, and you can alter several attributes to achieve the perfect look.

normal en space for each font. You can access special characters included within type families, but XPress does not recognize ligatures, nor does it possess Ventura's equation-handling prowess. The Mac version of XPress does handle ligatures, but this is a difference of interfaces — Windows does not recognize ligatures. With XPress it's easy to modify tracking tables by adjusting a graphic curve. Kerning pair values are also simple to adjust through a dialog box.

Horizontal text scaling, from 25 to 400 percent, distorts a font by expanding or condensing it. The program offers anchored rules above or below text, lets you position where the first line of text falls in the text box, and gives you four options for aligning lines of text vertically within the text box. You can also shift the baseline of any character.

It's easy to define the tint and color of type, as well as stylize type using outline or shadow attributes. With all this outstanding control, we rate typography excellent.

Graphics creation: XPress offers four picture box shapes, including a free-form polygon. You can color these frames and highlight them with decorative borders. XPress has 11 line attributes, including dashes and dots; you can size them from a hairline to 504 points, in 0.001-point increments. There are various type of endcaps, such as arrowheads. You can specify lines as a percentage of any color (from 0 to 100 percent in 0.1-percent increments).

Besides solid colors, you can fill frames with a linear color gradient from the Color palette by specifying the first and second color for the gradient and the angle. We rate graphics creation very good.

Graphics manipulation: You can change the order of frames and select an object that's completely hidden behind other frames. XPress lets you resize graphics proportionally or change the horizontal and vertical scale separately (from 10 to 1,000 percent). You can rotate a picture or skew (slant) an image, too.

Beyond applying a color to gray-scale and line art, you can modify contrast and line screens in TIFF images. This produces interesting effects, such as a posterized photo. Another important feature lets you control the way text flows around, behind, or within items and pictures. For instance, you can modify the runaround polygon surrounding a graphic to define how close text approaches it. We rate XPress' graphics manipulation very good.

Import and export: You can import word processing files from Ami Pro 2.0, Microsoft Write, Word for Windows 1.x and 2.0, WordPerfect 5.1 for Windows and DOS, and XyWrite III Plus. ASCII text or RTF-formatted files load as well. XPress can automatically convert quotes and double hyphens if you specify to do so through a dialog box. It will also append the style sheets of a Word for Windows, WordPerfect for Windows, Ami Pro, or RTF document to the active document's style sheet.

XPress imports BMP (and its variants DIB and RLE), GIF, PCX, TIF, and bitmap picture file formats; CGM, DRW, PCT, PLT, and WMF vector files; and EPS PostScript files. You can save complete text across or within a frame, or selected frames, in all the word processing formats supported during import. When saving text in ASCII, you can insert tag codes that specify character and formatting attributes.

We transferred Macintosh XPress 3.1 files to the Windows version with little difficulty. All page layout, text, and picture information appeared correctly. Changes to the General, Typographic, and Tool preferences for the document were retained, too. However, you will not be able to transfer Windows files back to the Mac until Version 3.2, which will be available in the first quarter of 1993 for the Mac and the second quarter of 1993 for Windows. Also, style sheets and hyphenation changes transferred intact. Font metrics are sometimes different between the Mac environment and PCs, so you may experience different line breaks. If your fonts are the same on both platforms (with the aid of ATM or TrueType), there won't be any differences. Also, if you don't save your Mac graphics with the preview information required for PC applications, you won't be able to see your image onscreen, but it will still print.

Import and export performance rates very good.

Speed: QuarkXPress performs swiftly, both in printing and on-screen tests. The live scroll feature updates the document view instantly as you move within the document window. The Windows version performed as fast or faster than the Mac version. We used ATM on Quark's recommendation (Quark does not ship ATM with XPress) because we couldn't access our PostScript fonts from the font menu. The typefaces that were resident in our QMS-PS 810 pinter were not available on the list. Because we used ATM, we substituted Times Roman for Palatino and Helvetica for Avant Garde. This may affect overall print times. We rate speed very good.

Output: XPress 3.1 supports Pantone, Trumatch, and Focoltone color matching systems. Additionally, you can create colors using RGB, CMYK, and HSB color models. XPress files work with high-end prepress systems that are designed for CMYK TIFF, DCS, and OPI separations.

XPress prints full-color proofs, plus separations for spot colors and process colors specified in the document. It will also separate images saved in CMYK TIFF format. XPress offers a number of print-time options, such as printing spreads as contiguous output.

You can have XPress automatically calculate trapping values or specify trapping values yourself for individual objects. By taking advantage of all the output options, we produced color documents of superior quality and rate output quality very good.

DOCUMENTATION: QuarkXPress for Windows' manuals closely parallel those developed for the Mac version. There's a tutorial with follow-along documents on disk, users' guide, and reference manual. All the manuals are filled with screen shots and output samples that illustrate just about every operation. The text is written from a designer's viewpoint, and even the reference uses an understandable step-by-step style that shows you how to accomplish a task.

On-line help is thorough, but it is only available from the Help menu; there is no context-sensitive help. You can add your own comments to the help file. The printed indexes offer convenient cross references to the other manuals, and there's a quick-reference card. We rate documentation very good.

BENCHMARKS

INFO WORLD

High-end desktop publishers

	QuarkXPress for Windows Version 3.1	Aldus PageMaker for Windows Version 4.0	QuarkXPress for Macintosh Version 3.1
Technical manual			
Open document	00:16	00:17	00:05
Jump to last page	00:01	00:03	00:03
Change views	00:03	00:02	00:02
Save document	00:03	00:26	00:05
Print document	03:51	03:55	06:35
Flow text (Microsoft Word)	00:22	00:25	00:19
Newsletter			
Open document	00:20	00:14	00:11
Jump to last page	00:04	00:03	00:04
Change views	00:11	00:03	00:04
Save document	00:03	00:07	00:02
Print document	03:45	03:47	05:31
Place EPS file	00:04	00:03	00:02

Time in minutes:seconds; lower numbers indicate better performance

Which UPS vendor is preferred 3-to-1 for mission-critical protection?

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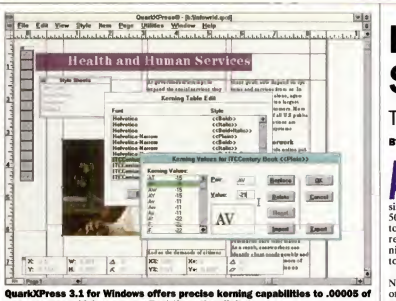
Reader surveys by PCWeek and InfoWorld conclude what their editors have been saying all along: there's no substitute for APC reliability. And when your LAN depends on clean, consistent power, there's no room for second place. Call for your free LAN protection handbook at 800-800-4APC or on Compuserve at GO APCSUPPORT



QuarkXPress 3.1 for Windows offers precise kerning capabilities to .00005 of an em space, which you can adjust through a dialog.

EASE OF LEARNING:

If you're familiar with the Macintosh version, XPress for Windows will give you a sense of deja vu. Menus, palettes, and general operations are essentially the same for both programs — thus there should be little, if any, relearning time required.

If you know Ventura Publisher, you should also be on familiar ground. The frame metaphor between the programs is very close, yet XPress' interface is much less cluttered than the cramped toolbar of Ventura 4.1. New users will probably need a day to understand the most sophisticated parts of the program. Nevertheless, XPress' toolbox, palettes, and logical menu structure put all controls conveniently at hand. Furthermore, type and graphic manipulation follow industry conventions, so users with traditional design backgrounds should feel comfortable. We rate ease of learning very good.

EASE OF USE:

An enormous number of placement and typographic options are controlled from the measurement palette. When you click on a text box, you can set type font, style, leading, and tracking. In the same way, you can adjust the position of picture boxes. In fact, by relying on this and the other palettes, you can probably handle the majority of design tasks without touching a pull-down menu.

For example, the color blend feature eliminates the need to import gradients from an illustration program, which is a common layout requirement. However, XPress supports only linear blends in this version. Version 3.2 will support five blend models. Likewise, the trap information palette offers item-by-item override of any automatic trapping settings. Full-color image preview, plus calibrated display colors, help greatly in visualizing a design on-screen, and you can also set the software so that your printed output matches what you see on your monitor.

We did run into a glitch with available typefaces. We were unable to access the PostScript typefaces that are resident in our QMS-PS 810 printer; they did not show up on our font menu as they should have. We never had this problem with the Macintosh version.

XPress offers hundreds of keyboard commands that usually take the form of Ctrl-Shift or Alt-Shift key combinations. Many are straightforward, but others require more mouse clicks than competitive programs. We rate ease of use good.

SUPPORT:

Support policies: You receive free technical support for a limited 90-day period and a 60-day money-back guarantee. Extended support is available for $195, which entitles you to a year of free technical help, newsletter, and discounted or free upgrades. Support hours are between 7 a.m. and 5 p.m. Mountain time, Monday through Friday. Bulletin board and fax services are provided. The short free period prevents a higher score. Support policies are rated satisfactory.

Technical support: Quark's support staff was well versed in the program's operation and the quirks of running in the Windows environment. They helped us figure out a conflict in our Windows initialization file and also isolated a problem with a third-party display driver. The technicians went to extra lengths to make sure our questions were properly resolved. We rate technical support very good.

VALUE:

QuarkXPress for Windows should please anyone who appreciates fine typography. The program's color handling and separation capabilities also provide a cost and time advantage if your commercial printer can work directly with XPress files. This is not as prevalent on the Windows side, as many service bureaus have not replaced or augmented their Macs with PCs. This won't be a problem with Version 3.2 when you can transfer files from Windows to the Mac.

The program's $895 price puts it $100 above Ventura Publisher and PageMaker. But that's not much of a premium to pay, especially considering QuarkXPress' long list of capabilities and straightforward operation. Value rates very good.

Mike Heck is manager of electronic promotions for Unisys Corp. of Blue Bell, Pa. He oversees desktop production of marketing literature and specializes in project management, graphics, and word processing applications.

LanExec 2.0: affordable SNMP monitoring tools

Trade-off is lack of customizable thresholds

BY MARY CARLETON REVIEW BOARD

ADI Systems' LanExec 2.0 delivers an affordable, Windows-based Simple Network Management Protocol (SNMP) solution for small to mid-size NetWare networks (approximately 50 nodes). The program offers an easy-to-use method to monitor local and remote nodes, though it lacks such niceties as the capability to set customized network-usage thresholds.

The basic LanExec package monitors NetWare 2.x servers and NetWare Lite or LANtastic workstations that are attached to NetWare 2.x or 3.x servers. It lets network administrators set performance thresholds, inventory hardware configurations, and remotely reset network interface and hub cards from a central workstation, but it doesn't offer SNMP capabilities to monitor a NetWare 2.x server.

We also evaluated two optional ADI modules: the LanExec Server Management Module, an SNMP agent and NetWare Loadable Module that adds the capability to monitor NetWare 3.11 server performance, traffic, connections, and capacity; and the LanExec Rmon Router Management Module, an SNMP agent that lets you monitor and manage LanExec-supported devices on remote NetWare segments.

In order to monitor the network effectively, LanExec must use its own NIC drivers, which are SNMP agents that reside on the workstations. The program can operate over thin-net, thick-net, and 10Base-T Ethernet, but not Token Ring.

We modified the report card used in our September 21 (page 105) review of Microcom LANlord 1.0, substituting the category of remote monitoring for software metering. LANlord is a pricier but more fully featured SNMP management package.

PERFORMANCE:

Network monitoring: LanExec monitors all the statistics defined in the SNMP Management Information Base-II (MIB-II) specification, as well as quite an array of NetWare-specific variables defined in ADI's own private MIB. It lacks any provision, however, to expand or customize the MIB definitions to accommodate third-party SNMP-aware hardware.

ADI says that LanExec monitors network performance in real time. Strictly speaking, it does, but the real-time processes occur in the background; most query screens reflect the status of the network at the exact moment you execute the query. The screen will remain frozen until you make another query.

LanExec's Server Management Module offers only six preset statistics that you can specify as network performance thresholds. You can choose the number of errors that must occur in each category before thresholds are exceeded. This lack of versatility restricts LanExec's usefulness.

LanExec will issue an audible alarm when a threshold is exceeded, but you must be at the workstation to hear it; the package does not provide the capability to activate a beeper.

The basic LanExec package excels at pinpointing who your primary network users are at any given moment. Network Statistics, an almost-real-time monitor (it can display network activity data in 2-second slices), shows the seven current busiest nodes and what type of traffic they are transmitting. ADI also supplies a Packet Analyzer to investigate the breakdown of IPX, IP, or NetBIOS packet sizes that the network transmits from one node to another.

LanExec ignores the portion of the SNMP specifications that let you set some MIB variables; you can monitor those variables, but you cannot change them. An important exception to this is the program's capability to reset remote NICs. Network monitoring is good.

Remote monitoring: LanExec's Rmon/Router Management Module requires that remote workstations and routers

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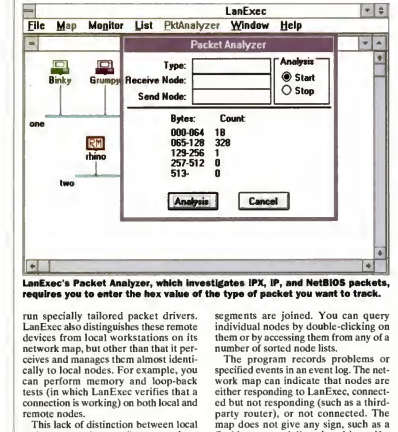

LanExec's Packet Analyzer, which investigates IPX, IP, and NetBIOS packets, requires you to enter the hex value of the type of packet you want to track.

run specially tailored packet drivers. LanExec also distinguishes these remote devices from local workstations on its network map, but other than that it perceives and manages them almost identically to local nodes. For example, you can perform memory and loop-back tests (in which LanExec verifies that a connection is working) on both local and remote nodes.

This lack of distinction between local and remote nodes contributes greatly to LanExec's ease of use. Remote monitoring earns a very good score.

Workstation inventory: ADI's private MIB lets the LanExec manager make queries about such hardware information as a workstation's machine and CPU type, level of DOS, and its BIOS date. Software-related queries consist of determining which version of LanExec resides on a node.

Within the node icon on its map of the network, LanExec can store such information as the location and serial number of the node and a user contact for the node. It also includes a nondedicated text field labeled "other." LanExec offers minimal but functional inventory capabilities. We rate them satisfactory.

Querying and reporting: LanExec represents the network in the form of a graphical map that shows which nodes are on which segments and how those segments are joined. You can query individual nodes by double-clicking on them or by accessing them from any of a number of sorted node lists.

The program records problems or specified events in an event log. The network map can indicate that nodes are either responding to LanExec, connected but not responding (such as a third-party router), or not connected. The map does not give any sign, such as a flashing or specially colored icon, if a node exceeds its threshold values.

The program also lacks any provision for printing captured screens or the event log. Because the event log is in ASCII, however, you can easily print it outside of LanExec. Querying and reporting tools merit a satisfactory score.

DOCUMENTATION:

ADI bundles the documentation for all three packages (LanExec, 3.11 Server Manager, and Remote Monitor) in a single manual that comes with the primary LanExec package. The manual is easy to read and includes pictures of every possible screen, a useful appendix of MIB variables and definitions, and a glossary of common terms. LanExec provides online help, but you cannot access it from within all the program's screens, nor is it context sensitive. We found two flaws in the otherwise fine documentation: The index contains occasional gaps in which it fails to list certain topics, and some of the explanations regarding user-defined fields were unclear. Overall documentation earns a very good score.

SETUP:

If you are running a NetWare-only network, the most difficult aspect of installing and configuring LanExec will be deciphering the instructions. This is in part a result of ADI's need to use Novell's WSGEN to create its own version of IPX.COM, PKTIPX.COM, and in part a result of having to install ADI's own specialized packet drivers on each monitored node. (You must replace even the packet driver on the server with ADI's own.)

LanExec will automatically detect and report hex addresses, but you must manually match a hex address with a node. This process is tedious but not difficult. Once you have the PKTIPX.COM in place and the addresses gathered, the rest of the installation consists of executing a series of semiautomated, self-documenting installation programs and filling in fields from within Windows.

Users of mixed networks may encounter problems regarding LanExec's need to use its own packet drivers. If you require NDIS or ODI for some other application — for example, to concurrently run TCP/IP — you will need a second NIC. Even then, you may lose the use of the private ADI MIB, although the standard SNMP MIB will still function. We rate setup satisfactory.

EASE OF USE:

ADI has done a fine job of leveraging Windows' strengths to maintain a consistent interface across the monitored nodes. LanExec presents 11 MIB items in English, rather than by their MIB number or cryptic MIB identifier. You query the MIB items using a standard Windows point-and-click approach.

Only the Packet Analyzer forced us to refer to notes and other screens to figure out how to use it. The Packet Analyzer requires you to enter the hex value for the packet type you want to monitor and the 12-digit hex addresses of the send- and receive nodes you want to track. On-line help supplies the packet-type codes, such as 8137 for IPX, and you can get the hex addresses from LanExec's network map. We would have appreciated a browse option or menu choices, though, for this one unfriendly screen.

One other inconvenience is that LanExec's event log identifies nodes by their hex addresses, not their assigned names. The program does use names in the network map and the list of nodes by category. Overall the program presents a consistent, likable interface. Ease of use earns a very good score.

SUPPORT:

Support policies: ADI offers toll-free support from 8:30 a.m. to 5:30 p.m. weekdays, Pacific time. Fax support is also available. Support policies are good.

Technical support: The ADI technical staff is not yet completely familiar with LanExec, nor is it fully up to speed on the aspects of NetWare that relate to its product. On the positive side, staffers always went back to their lab to recreate and/or test problems we described. We rate technical support satisfactory.

VALUE:

If you are looking for a basic SNMP manager for NetWare networks with NetWare-specific extensions, then LanExec should suit you. Its lack of user-selectable network thresholds makes it a bit less versatile than such products as Microcom's LANlord, but it also carries a lower price tag: 50 users for $999 (plus $199 for the Server Management Module) vs. $2,499 for LANlord.

Another advantage to LanExec is that it does not require a dedicated workstation or OS/2 to function, nor does it hog resources. The central manager requires a minimum of 2 megabytes of RAM; it consumes only 44K of disk space, plus whatever you allocate to your log file(s). This reduces the cost of the equipment needed to run LanExec, making the program even more economical.

While LanExec does rate well as a pure SNMP monitor, it does not deliver a comprehensive set of alarms and traps or true network inventory or hardware control. We rate LanExec a good value.

Mary Carleton is a member of InterLink, an international consortium of network consultants.

REPORT CARD INFO WORLD

NETWORK MANAGEMENT SOFTWARE

LanExec

VERSION 2.0

Criteria	(Weighting)	Score
Performance		
Network monitoring	(100)	Good
Remote monitoring	(100)	Very Good
Workstation inventory	(50)	Satisfactory
Querying and reporting	(50)	Satisfactory
Documentation	(75)	Very Good
Setup	(125)	Satisfactory
Ease of use	(175)	Very Good
Support		
Support policies	(75)	Good
Technical support	(100)	Satisfactory
Value	(150)	Good
Final score		**6.2**

PRODUCT SUMMARY

Company: ADI Systems Inc. is based in San Jose, Calif., and can be reached at (408) 944-0100; fax: (408) 944-0300.
List price: LanExec: five-user license, $299; 20-user license, $599; 50-user license, $999; 100-user license, $1,499; 250-user license, $2,499 (each price allows one manager and the specified number of nodes). NetWare 3.11 Server Management Module: $199 per server. Rmon/Router Management Module: $399, unlimited number of devices.
Requires: LanExec: NetWare 2.x, Windows 3.1; 386 or later PC compatible; 2 megabytes of RAM. Server Management Module: NetWare 3.11.
Pros: Easy to use; handles local and remote nodes similarly.
Cons: User cannot set custom thresholds; setup requires manual matching of network interface card hex addresses.
Summary: LanExec is an affordable choice for basic workstation and server SNMP monitoring. For a slight extra cost, you can also transparently monitor remote workstations and devices.

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IBM joins front runners in 486 color notebook race

Speedy, well-designed ThinkPad 700C has a top-notch display but also a hefty price

By Andreas Uiterwuk
Technical Analyst
And Siobhan Nash
Assistant Reviews Editor

Notebooks incorporating 486 processors are coming out in droves, many with color screens. IBM entered the fray not long ago with the ThinkPad 700C. It bears the same name as the vendor's top-of-the-line pen computer, and we were equally impressed with the 700C's quality. It offers a brilliant active matrix display and a handy joysticklike pointing device embedded in the keyboard. Its CPU is an IBM 25-MHz 486SLC.

The ThinkPad proved an above-average performer, and the color display is one of the nicest we've seen — both in size and color quality. However, both the price ($4,350) and weight of the system are a bit hefty.

We ordered the IBM's performance with Toshiba's T4400SXC (see comparison, July 27, page 64) and PC Brand's LeaderBook SLC, which we will review in full in a product comparison of 25-MHz 486 notebooks on December 21. In SYSmark92 tests, the ThinkPad was 17 percent slower than the T4400SXC (with an active matrix screen and a 486SX/25 CPU). However, the 700C performed 22 percent faster than the LeaderBook (with a Cyrix 486SLC/25 processor and monochrome display).

In our multitasking tests, the IBM ThinkPad was faster than the Toshiba T4400SXC by 3 percent.

The ThinkPad measures 8.3 inches by 11.7 inches by 1.9 inches. It is a bit on the heavy side: 9 pounds, 0.5 ounces with both battery and power supply. With battery only, the 700C weighs 7 pounds, 14 ounces. And without battery or power supply, it weighs 6 pounds, 6 ounces.

The ThinkPad posted an average battery life — 3 hours and 20 seconds.

We tested the 700C with its standard 4 megabytes of RAM, which is expandable to 16 megabytes. Our evaluation unit also came with a 120-megabyte hard drive — the largest available.

The IBM's active matrix screen displayed rich, bright colors and clear, crisp text. The screen is also one of the largest we've seen on a color notebook, at 10.4 inches. We experienced no washout when viewing at angles. Unlike some other color notebooks we've looked at, the 700C offers both contrast and brightness controls, which are easy to adjust with your thumb.

We were very pleased with the ThinkPad's keyboard. The keystroke action was quick and precise and had a solid feel to it, but no click. Most of the 84 keys are full size; however, we found the space bar a tad short. Function keys are located across the top of the keyboard and are three-quarter size, as are the Page Up, Page Down, Insert, and Delete, which reside to the right. You can find the arrow keys to the lower right of the keyboard in an inverted-T pattern.

New to the IBM keyboard is the TrackPoint II. Whereas many vendors are adding pointing devices on their notebooks, the TrackPoint is unique in that it resides on the keyboard between the G and H keys. This device looks like a small pencil eraser and protrudes slightly above the lower corners of the two keys; the mouse buttons sit below the space bar. Although it took a little getting used to (what integrated pointing device doesn't?), the TrackPoint was very much to our liking. We found it easy to use and perfectly placed for both right- and left-handed users.

The ThinkPad's documentation consists of a quick-reference manual (really a users' guide), getting-started guide, and internal fax/modem manual. A table of contents and index accompany the users' guide, but there is no glossary. We found the quick-reference manual complete, with many useful diagrams and illustrations; easy to read; and useful for both novice and advanced users.

The 700C came set up and ready to run with DOS 5.0 pre-installed. Prodigy and the VGA drivers were included but not installed, but the power management options came pre-installed with a corresponding disk and some features specific to Windows that the user needs to configure. There is no CMOS setup accessible through booting up, but the utilities that do come with the ThinkPad are easy to use and understand.

Ruggedly designed, IBM's ThinkPad has a solid feel. You can upgrade this MCA system from 25 MHz to 50 MHz via IBM's 486SLC2 clock-doubling processor. You can also add memory by installing IC dynamic RAM cards, which are the size of a credit card, into the side of the 700C. These cards are easy to install and come in 2-, 4-, and 8-megabyte sizes. In addition, this machine can be plugged into an IBM docking station via a connector on the back. LEDs, which are visible with the screen open or closed, show battery status, whether or not the system is in suspend mode, whether or not the system is charging, drive access, num-lock, etc.

REPORT CARD INFO WORLD

NOTEBOOK COMPUTER

IBM ThinkPad 700C

Criterion	(Weighting)	Score
Performance		
SYSmark92	(200)	Very Good
Multitasking	(50)	Excellent
Compatibility	(50)	Excellent
Size and weight *9 pounds, 0.5 ounces with battery and power supply.*	(75)	Satisfactory
Battery life *3:00:20; nickel-cadmium battery.*	(75)	Very Good
Capacity *120-megabyte hard drive; 4 megabytes of standard system RAM, expandable to 16 megabytes.*	(50)	Excellent
Screen readability *10.4 inches; 640-by-480 active matrix display.*	(75)	Excellent
Keyboard *84 keys; quick response, solid feel.*	(50)	Very Good
Documentation *Easy to read and understand; useful for novice and advanced users.*	(50)	Very Good
Ease of use	(50)	Very Good
Serviceability		
System design	(50)	Excellent
Support policies	(50)	Excellent
Technical support	(25)	Good
Value	(150)	Very Good
Final score		**8.0**

PRODUCT SUMMARY

Company: IBM Personal Computer Co., in Somers, N.Y., can be reached at (800) 772-2227.
List price: $4,350; includes DOS 5.0 and Prodigy.
Features: 25-MHz 486SLC; parallel, serial, and external VGA ports; 640-by-480 active matrix VGA screen.
Storage and memory: 120-megabyte hard drive; 1.44-megabyte, 3½-inch floppy drive; 4 megabytes of RAM, expandable to 16.
Pros: Above-average performer; first-rate display; well-integrated pointing device.
Cons: Relatively expensive.
Summary: Although not as fast as a 486SX/25, the ThinkPad will more than adequately handle any high-end mobile computing needs, and the screen is one of the best we've seen.

BENCHMARKS INFO WORLD

25-MHz 486SLC notebook computers

	IBM ThinkPad 700C	Toshiba[1] T4400SXC	PC Brand[2] LeaderBook SLC
Battery life	3:00:20	3:14:08	3:14:26
SYSmark92[3]	62.59	75.53	48.69
Multitasking[4]	2:10	2:14	N/A[5]
Database	52.45	67.46	45.48
Desktop graphics	63.85	83.94	55.74
Desktop publishing	74.66	83.41	50.12
Software development	61.40	62.83	53.83
Spreadsheet	65.32	75.16	45.72
Word processor	62.06	75.38	48.06

[1] The Toshiba T4400SXC was reviewed in the product comparison of July 27, page 64.
[2] PC Brand notebook for comparison purposes only. It will be reviewed in full in our December 21 product comparison of 25-MHz 486 notebooks.
[3] Higher numbers indicate faster performance.
[4] Lower numbers indicate better performance.
[5] Multitasking times unavailable.

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HSC Interactive is great for simple multimedia tasks

Subset of Aimtech's IconAuthor eliminates high-end features such as programmability

By Jim Canning Review Board

Building a complete multimedia performance requires skills in a number of areas — graphic arts, design, and programming — and a thorough understanding of the content. High-end authoring packages such as Macromedia Inc.'s Authorware and Aimtech Corp.'s IconAuthor require more programming and design, whereas lower end products such as HSC Interactive shield the developer from the technical aspects of putting together a presentation.

HSC Software banked on IconAuthor's success in the high-end market and licensed a major portion of the product. HSC Interactive doesn't have IconAuthor's programmability and has roughly 60 percent of IconAuthor's functionality at a 10th of the price. In addition, you can upgrade from HSC Interactive to IconAuthor at a reduced price — and all files will be compatible.

HSC Interactive has the same graphical user interface found in IconAuthor, but there is no scripting language. Elements of a project are represented by icons connected logically, like items in a flow chart.

Each icon can contain one or many functions such as a multiple choice menu, dialog box, or device driver.

We tested HSC Interactive based on the March 9 multimedia authoring tool product comparison (page 76), which included IconAuthor.

Performance:

Programming environment: HSC Interactive uses IconAuthor's guided flowchart model and takes advantage of Windows' Multiple Document Interface (MDI) standard, which enables you to open several projects simultaneously. In order to move functions between projects, you simply hold down the Ctrl key and drop the function into the new project. Branching and looping based on user selections are simple.

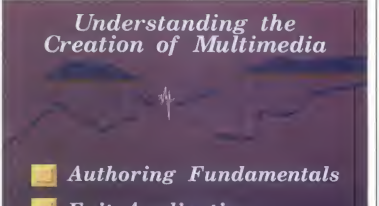
When you create a new project, a Start icon begins the chart. You then select and drag items from the scrollable toolbar to the workspace and move them to a logical place in the project flow. The logic flow from step to step is represented by connecting lines between icons.

Single icons can contain several high-level functions, such as a multiple choice menu. These icons are called compound icons and can be dropped into the workspace, where they open up into a group of related icons. If you want to add functionality to compound icons, such as actions to take when a menu choice is made, you can use the included dialog boxes or drag new icons onto the structure.

However, user-defined variables and database functionality are missing. Although you can build a multitude of business and training applications with HSC Interactive, if you want to record user's results (as with interactive teaching programs), IconAuthor is more appropriate.

We rate HSC Interactive's programming environment good.

Hyperlinking: Almost any event can be triggered by user interaction. MCI devices, such as sound or MIDI music playback, can be activated by mouse clicks or menu selections. Although navigating is easy using the flowchart collapse and expand, there are no bookmark functions, so jumping from one place to another is time-consuming. In order to create an interactive presentation, you define "hot spots" on an interactive screen so that whenever the mouse is clicked you are taken to another region of the program. HSC Interactive assigns an integer value to each of the hot spots in the order in which they were created.



HSC Interactive enables you to create simple presentations and interactive training applications.

It is possible to implement limited hypertext functions, using the hot regions, but specific words cannot act as triggers unless defined by specific screen coordinates. This makes true hypertext, where free-floating and scrollable text material can contain hotlinked words, essentially impossible in HSC Interactive.

Icons that represent different tasks are designed to give you visual cues about their functions, and compound icons make development a breeze.

We rate hyperlinking satisfactory.

Media and data import: HSC Interactive imports both sound and image files, and you have access to a wide range of external devices using the MCI driver capabilities. MID and WAV (standard Windows sound formats) files can be imported, but there are no facilities for creating these files. However, bundled sound editing software that will let you edit WAV and MIDI files is due out after the first of the year. A graphics editor enables you to create as well as capture images. You can import BMP, PCX, and RLE formats. In order to access CD ROM data, an MCI icon can be added. A presentation graphics application will be bundled with the product at no extra cost after the first of the year, according to HSC. In addition, you can import Microsoft Video for Windows and Intel Corp.'s DVI files.

We rate media and data import capabilities good.

Animation: HSC Interactive includes a separate application called Icon Animate that includes basic animation elements. Creating straight-line bit-map movement interactively is straightforward, and images can be "locked" so that objects appear to pass behind or in front of them. You can also assign a specific color or transparent color to any image or scene.

In general, we found the performance of the included special effects sluggish, and some of the features assume you have a 640-by-480 nonvariable display size. This means that the screen size in which you create the animation remains the default for that presentation. You can play animations created by third-party packages such as Autodesk Inc.'s Animator if you first install an MCI driver. We rate animation good.

Application linking: HSC Interactive does not support links to other applications, such as Dynamic Data Exchange (DDE) and Object Linking and Embedding (OLE). There is no facility for launching another Windows application. We rate application linking not available.

Documentation: HSC Interactive includes a users' manual and a getting started booklet. The manuals are informative and well illustrated, including a tutorial section and an index. However, there was no entry for installation in the getting-started guide. Overall the manuals were well done, and there is on-line help. Documentation is very good.

Ease of Learning:

HSC Interactive is intuitive. Using Icon Author's drag-and-drop paradigm, editing and reordering projects is a snap. For example, editing a title's flowchart is consistent with the way it was created; you can move icons with the mouse, drag them to the trash can, mark them or move or copy them into a new project.

Icons that represent different tasks are designed to give you visual cues about their functions, and compound icons, which produce groups of related operations, make development a breeze. However, in order to incorporate MCI devices in your presentation, you must know some technical parameters. It is not an easy drag and drop task. Anyone used to standard Windows conventions

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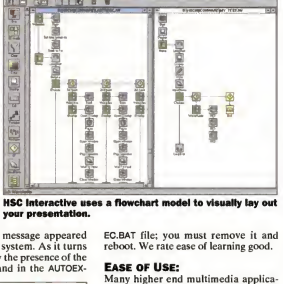
shouldn't have a hard time figuring out basic operations. HSC Interactive supports the MDI standard, but it does not make use of the common Windows dialogs for file access.

It is possible to begin building an application within a few hours, thanks to the fine tutorials in the getting-started manual. We only ran into one problem when we installed the program — a "Non-Fatal Error" message appeared that later hung our system. As it turns out, it was caused by the presence of the DOS Share command in the AUTOEXEC.BAT file; you must remove it and reboot. We rate ease of learning good.



HSC Interactive uses a flowchart model to visually lay out your presentation.

REPORT CARD INFO WORLD

MULTIMEDIA AUTHORING TOOLS

HSC Interactive

VERSION 1.0

Criteria	(Weighting)	Score
Performance		
Programming environment	(125)	Good
Hyperlinking	(100)	Satisfactory
Media and data import	(100)	Good
Animation	(50)	Good
Application linking	(50)	N/A
Documentation	(125)	Very Good
Ease of learning	(100)	Good
Ease of use	(100)	Very Good
Support		
Support policies	(50)	Good
Technical support	(75)	Very Good
Value	(125)	Good
Final score		**6.1**

PRODUCT SUMMARY

Company: HSC Software, in Santa Monica, Calif., can be reached at (310) 392-8441; fax: (310) 392-6015.
List price: $495.
Requires: Intel 80286 or compatible system; 2 megabytes of RAM; hard disk drive; Windows 3.0 with Multimedia extensions; DOS 3.x or later; Windows-compatible sound card (if MIDI is needed).
Pros: Easy-to-learn graphical interface; semi-automated development; fine tutorials and documentation, unlimited royalty-free run time.
Cons: No integrated development environment; lacks user-defined variables; doesn't offer OLE, DDE, or TrueType support.
Summary: HSC Interactive is a fine introductory application for the novice multimedia developer. This affordable tool will produce professional results quickly but may not have all the capabilities necessary for advanced presentations.

EASE OF USE:

Many higher end multimedia applications require hours of reading just to figure out how to create a simple presentation. HSC Interactive is different. You can rapidly design and lay out a new production without providing all the details. In addition, replicating a sequence is fast and easy, and changing the contents of a particular icon goes quickly. You simply double-click on an icon and a dialog box appears that provides all the information you need, freeing you from lengthy source code listings and program design charts.

Interactively running and debugging a title is simple. You can view the entire presentation or run a marked subset. The only drawback we found is having to run separate applications to prepare animations or graphics. We rate ease of use very good.

SUPPORT:

Support policies: Unlimited technical support is provided 8 a.m. to 5 p.m. Pacific time. HSC offers a 30-day money-back guarantee, as well as a forum on CompuServe. We rate support policies good.

Technical support: The support staff was friendly and helpful. Our questions were answered thoroughly and completely. We didn't spend time on hold or have difficulties getting through to technical support. On CompuServe, technicians can mail you sample titles. We rate technical support very good.

VALUE:

In contrast to full-featured products, such as IconAuthor and Authorware Professional for Windows ($4,995 and $7,995, respectively), HSC Interactive ($495) is a bargain. It is slightly less expensive than Asymetrix Corp.'s Multimedia ToolBook, but HSC Interactive doesn't provide the same programmability and flexibility.

In some ways, HSC Interactive has more in common with multimedia presentation products such as Gold Disk's Animation Works Interactive and Macromedia's Action than with full-fledged authoring tools. HSC Interactive's intuitive development environment and flexibility make it an ideal choice for simple tasks and presentations. We rate its value good.

Jim Canning is an independent multimedia title developer with Stratos Systems, in Sunnyvale, Calif.

Macromedia Action is powerful and intuitive presentation tool

Version 2.0 adds important features, such as 2-D and 3-D charting and DDE support

BY DOUG AND DENISE GREEN
CONTRIBUTING EDITORS
AND JIM CANNING REVIEW BOARD

Presentation graphics programs will inevitably benefit from the influx of multimedia capabilities in Windows. Already, PowerPoint 3.0 and CorelDraw 3.0 have introduced rudimentary sound and animation capabilities for their presentation files. Though the questions about multimedia's future are many, there is no doubt that businesses will benefit from the dazzling presentations possible with multimedia-capable presentation software.

Enter Macromedia Inc.'s Action, which first shipped last fall when the MPC specification was waiting in the wings and Windows 3.1 was still unreleased. With the release of Version 2.0 for Windows and Version 1.0 for Macintosh, Macromedia has developed a powerful and intuitive presentation tool for the same price as Harvard Graphics or PowerPoint.

FEATURES:

Action presentations on both platforms contain scenes that correspond to slides in a slide-making application. Scenes contain objects that you create, and you can import sounds, graphics, or Macromind Director (Windows) or QuickTime (Mac) movies.

Action for Windows 2.0 adds some necessary features. Most important for business presentations are two- and three-dimensional charting tools. Standard overhead transparency slides with gray-scale charts look anemic in comparison. Dynamic Data Exchange support makes charting even simpler.

MIDI support is a welcome addition, and synchronization of sounds with objects is substantially easier. CD audio is available as a sound type, as long as a Windows-compatible CD ROM drive and MCI device driver are present.

A Player utility included with Version 2.0 enables free distribution of presentations. Version 2.0 also supports import of other presentations into a new presentation.

Action still imports "movies" produced with Macromind Director, but it lacks support for animations or movies created by other Windows products such as Animation Works Interactive or Autodesk's animation player. Also missing is support for Microsoft's long-awaited but still unreleased Audio Visual Interleave (AVI) video format. However, Version 2.5 for Windows, shipping at the end of the month, will support AVI, Autodesk, FLIC, and QuickTime for Windows formats. Also shipping at that time will be Version 1.01 for the Mac with a much-needed player utility.

Clip-media libraries shipping with Action include sounds (no MIDI files), graphics (mostly buttons), and movies. Additional CD ROM libraries of animations and movies are available from Macromedia for $395.

In comparing Action with other presentation graphics programs, we use the criteria established in our most recent comparison of presentation packages (June 22, page 104).

PERFORMANCE:

Presentation organization: Windows and Macintosh functionality is virtually identical. Action breaks up presentations into one or more scenes, using a play or film metaphor. Presentations can move from scene to scene in sequence, or buttons can enable presenter-controlled jumps to any other scene in the presentation. For quick and easy presentations, the numerous high-quality templates give a head start.

The Content List view of a presentation is similar to an outliner, displaying a list of all the scenes in a presentation and their object. However, it is not like an outliner where you can insert text. The Timeline view, a Macromedia trademark, is a powerful control panel; you

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control the duration and placement of objects within a scene with the mouse. The Scene Sorter, like the slide sorters found in other presentation packages, offers thumbnail sketches of scenes and enables rearrangement of scene order via dragging.

Action remembers the positioning of open tools and windows, and it places them there when it restarts. The number and usefulness of these windows make it very desirable to have a display adapter and monitor that support 1,024-by-768-pixel resolution or higher, even if your target presentation window is 640 by 480.

We rate presentation organization very good for both Windows and Macintosh.

Text charting: In both versions, creating text charts is simple. Templates offer built charts that are attractive and easy to use, and users can create their own templates.

Macromedia's developers have clearly emphasized interaction as part of the experience for the user.

In the Windows version, applying templates to a scene is still an awkward process, because an object from the template must be promoted to the scene via a menu pick before the object can be edited. Adding new text to a scene is a simple matter of drawing a working area in the presentation window with the text tool. Double-clicking on the area opens the parameters for that text object, allowing the user to modify alignment and animation settings.

Action 2.0 retains robust text animation capabilities and adds a few twists. After applying animation to a line of text, moving the text to another location isn't problematic. If the text was to slide in from the top over a 3-second period, it still does. Adding drop shadows to make segments of text stand out is now possible, although it's difficult to find settings and change colors.

Editing text already placed on the screen can be frustrating. Simply clicking on the text doesn't put the user in edit mode. Selecting the text icon prior to clicking on the text is necessary, after which the text becomes editable.

Neither product offers a text outliner.

We rate text charting satisfactory for both Windows and Macintosh.

Numeric Charting: Charting in the Windows version is much improved. Previously, static charts required manual intervention to modify values. Now, charts link dynamically to data stored in Action's Data Window, a very limited spreadsheet.

If you don't like the functionality in the Data Window, however, simply edit in Excel or Lotus 1-2-3 and then link the data to Action. Any changes in the spreadsheet will automatically be reflected.

The number of options and controls available for animating charts is dizzying. However, the templates have numerous examples of presentations that include animated charts in all styles. Loading a charting template and then editing the default values and legends is relatively easy.

Action will import WKS, XLS, DBF, and CHT (Harvard Graphics) spreadsheet formats, as well as formatted ASCII text files and WMF versions of graphs from the Windows clipboard.

Macintosh's Action 1.0, like the first Windows version, contains no numeric charting tools. You'll have to draw charts with Action's drawing tools or create a chart in another program.

We rate numeric charting very good for Windows and not applicable for the Macintosh.

Editing capabilities: All the basic graphics and drawing tools are available and easy to use. The conventions for manipulating graphics are all standard to the interface. Double-clicking the object brings up the object attributes dialog common to most Action objects.

You can set each tool to draw multiple objects without reselecting it, and you can constrain rectangles and ellipses to draw as squares and circles. You cannot control the degree of rounding for rectangles or add arrow heads to lines. There are no margins or rulers within the text tool.

Drop shadows are a new feature in 2.0. By automating the creation of shadows, Action avoids the often time-consuming task found in other presentation packages. Editing the shadow coloring is a little difficult at first. When working with 256 color images, Action changed existing colors associated with objects and shadows to fit the new palette with apparent disregard for the original color. Unfortunately, Action does not support higher color depths.

Action 2.0 will import DIB and BMP for bit maps, and WMF for vector graphics, although you may need to employ the included graphics Convert utility.

Version 1.0 for the Macintosh does not offer drop shadows. It imports PICT files, which can be edited within Action. It will import paint files, but they cannot be edited; also, Action has difficulty managing PICT files with Bezier curves. We received a memory error and had to restart, even though we had 4 megabytes devoted to Action.

We rate editing tools good for Windows and satisfactory for the Macintosh.

Presentation tools: The flexibility and power of Action for building presentations is evident, and interactively building and testing an Action scene is pleasant, rather than the chore many of us associate with presentations.

Macromedia has managed to create an easily understood metaphor for describing the characteristics of objects that change over time. Each object has Enter, Hold, and Exit characteristics. In the Windows version, 46 transitions and 10 motions are applicable to any object during Enters and Exits.

For the Mac, there are 30 effects, and transitions can be added between each scene as well as to individual objects. Here, the Mac is more efficient, possessing the same functionality as Windows Action despite the lower number of effects.

Action also handles the element of timing with great precision. Durations for transitions are accurate to 10ths of a second. When editing durations, Action recalculates any associated values. For instance, when animating a group of values in a chart, each element may contain a certain duration for its "arrival" on the chart. If the number of elements multiplied by the duration of the event doesn't equal the time allotted for the entire sequence, Action adjusts auto-

REPORT CARD — INFO WORLD

PRESENTATION GRAPHICS SOFTWARE

Action for Macintosh

VERSION 1.0

EASIER TO USE — SUBJECT TO CHANGE

Criteria	(Weighting)	Score
Performance		
Presentation organization	(100)	Very Good
Text charting	(75)	Satisfactory
Numeric charting	(75)	N/A
Editing capabilities	(75)	Satisfactory
Presentation tools	(75)	Good
Output	(75)	Excellent
Speed	(75)	Good
Documentation	(50)	Satisfactory
Ease of learning	(100)	Good
Ease of use	(125)	Good
Support		
Support policies	(25)	Good
Technical support	(50)	Good
Value	(100)	Satisfactory
Final score		**5.8**

PRODUCT SUMMARY

Company: Macromedia Inc., in San Francisco, can be reached at (415) 252-2200.
List price: $495.
Requires: Classic II (llci or better recommended); 4 megabytes of RAM; color monitor recommended; System 6.0.7 or later (System 7 recommended).
Pros: Intuitive interface, easy to make quick, flashy presentations.
Cons: No written tutorial, charting tools, or run-time player; still a bit buggy.
Summary: Although Action 1.0 lacks features found in many traditional slide presentation packages such as numeric charting tools, it does make the power of interactive multimedia available to such people as salespeople, business presenters, and educators.

REPORT CARD — INFO WORLD

PRESENTATION GRAPHICS SOFTWARE

Action for Windows

VERSION 2.0

EASIER TO USE — SUBJECT TO CHANGE

Criteria	(Weighting)	Score
Performance		
Presentation organization	(100)	Very Good
Text charting	(75)	Satisfactory
Numeric charting	(75)	Very Good
Editing capabilities	(75)	Good
Presentation tools	(75)	Excellent
Output	(75)	Excellent
Speed	(75)	Good
Documentation	(50)	Good
Ease of learning	(100)	Good
Ease of use	(125)	Good
Support		
Support policies	(25)	Good
Technical support	(50)	Good
Value	(100)	Good
Final score		**6.9**

PRODUCT SUMMARY

Company: Macromedia Inc., in San Francisco, can be reached at (415) 442-0200.
List price: $495.
Requires: Intel 286 or compatible (386SX or higher recommended); 2 megabytes of RAM (4 or more recommended); hard disk; high-density disk drive; 16-color VGA graphics; mouse; Windows 3.0 or later (3.1 recommended); Windows sound card (if needed).
Pros: Top-notch output, stable and reasonably fast; fun to use.
Cons: Some interfaces could be more intuitive; won't handle more than 256 colors.
Summary: Action is the premier product among presentation software tools for electronic presentations under Windows. Its improved performance, ease of use, and power make it a desirable upgrade candidate for current owners.

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- Cool Tools for DOS
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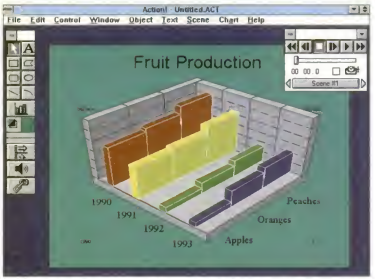

Numeric charting is a welcome new feature in Windows Action 2.0. Now charts link dynamically to your spreadsheet and can be animated.

matically and displays the modified duration in the Timeline view.

Sound can now attach itself to almost any object, so it is no longer necessary to manually synchronize sound with other objects.

The Timeline window makes it easy to adjust the start and stop time of a sound, but there are no options for fading sound in or out. Only one sound can be played at a time.

Action's superb linking capabilities enable a presenter to make a hyper-linked presentation, so that any scene within the presentation is accessible via a mouse click. This is a fine tool for interactive presentations or when you need to skip ahead.

Presentation tools are more limited in the Macintosh version. Animation is not as precise as in the Windows version, though you can import PICS or QuickTime movies for more sophistication.

Each motion can be accompanied by a transition effect. Windows Action imports WAV, MIDI, and CD-Audio files. Macintosh Action imports AIFF and SoundEdit files. To use AIFF files, you must include them with your presentation, as Action only references them and will look for them outside the presentation. Version 1.0 has no runtime feature.

We rate presentation tools excellent for Windows and good for the Macintosh.

Output: With both versions, you can print files to use as handouts or print a series of closely spaced snapshots from a single scene to create a flip-book animation effect. One, two, or four scenes can be printed on a single page.

You can print thumbnail views from the Scene Sorter window. There is an option for multiple scenes per page, similar to compressed slide views in other presentation packages. Users can elect to print the Timeline or Content List views as well. Unlike traditional presentation programs, however, there are no features for printing handouts and note pages that contain separate text.

In Windows you'll need a VGA-to-NTSC or PAL converter to print to video, but the results are worth it.

Macintosh Action presentations can also be recorded. It is a simple process if you have a video card that can output NTSC or PAL signals.

We rate output excellent for both Windows and Macintosh.

Speed: Both programs were fairly quick at moving between files and importing objects. They may not be as fast as a standard presentation graphics product, given that those products don't use animation or sound. Print times were slightly above average. We rate speed good for both Windows and Macintosh.

DOCUMENTATION:

The Windows version ships with a users' guide, a template guide, and an introductory videotape. On-line documentation is available.

Although the users' guide lacks a specific tutorial, it does offer sequential explanations of presentation development.

The videotape is an effective introduction and assists in learning complex operations such as linking.

The Macintosh version's users' guide basically describes the features of the product. On-line help is available under the Apple menu but is not context sensitive, nor is there Balloon help. There is no quick-reference card or step-by-step written tutorials. A 20-minute video tutorial comes with the product.

We rate documentation good for Windows and satisfactory for Macintosh.

EASE OF LEARNING:

For its advanced capabilities, Action is simplistic. Through templates and preconfigured charts, presentation graphics users can grasp its major components without a lot of time or effort.

With the Windows version, you can learn much of what you need to from watching the videotape and playing with

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the sample presentation included with the product.

We encountered a few interface problems. Dealing with sound once it is in a scene is awkward. Sound attached to an object does not appear as an object in the Timeline view — one must find the appropriate dialog box point to edit it. Detaching sound remains impossible, but you can set duration to zero or recreate the object.

The process of applying the template objects to the scene by promoting them may confuse some users.

Also, the distinction between template objects and scene objects in the Timeline view is vague, because unpromoted objects don't respond to manipulation, and the line that distinguishes them from the scene objects is just not clear enough.

Macromedia's developers have clearly emphasized interaction as part of the experience for the user. The various tools all respond to graphic manipulation. For example, the Content List lets the user drag objects to new locations in the presentation.

Macintosh Action offers a sample presentation that provides a good overview of the product. Though the sample is helpful, it excludes any use of the Timeline feature.

The videotape is helpful, but it does not go into depth.

We rate ease of learning good for both Windows and Macintosh.

EASE OF USE:

On the whole, both versions of Action are a breeze to use. An experienced presenter will build quick and dirty presentations in very little time (and the resulting product will likely look as if it took hours to produce).

Some of the problems we experienced with the Windows interface are not irksome once mastered. The variety of views of a presentation becomes useful rather than bewildering.

Although templates make Action easier to use, an option to promote the entire template at once, rather than manually selecting items first, would improve it even more. Action for the Macintosh has an intuitive interface with a one-level Undo feature. It is fairly easy to import and apply templates.

Setting adequate memory and disabling system extensions may save some potential problems. We experienced several system hangs before we disabled our numerous system extensions. Once, Action automatically opened when we double-clicked on an Excel 3.0 spreadsheet from the Finder. An error message told us that the application could not open our file, and the Get Info box then labeled the spreadsheet as an Action document.

While importing an Aldus Persuasion presentation, we also encountered a memory error, although the memory allocation was set at 4 megabytes.

Some of our PICT files were too big, and shadow-style fonts became two separate objects when ungrouped by Action.

We rate ease of use good for both Windows and Macintosh.

The Content List View contains a listing of all the scenes in your presentation. In the Time Line View you control the duration and placement of objects.

SUPPORT:

Support policies: Macromedia provides free, but not toll-free, unlimited technical support between 7 a.m. and 4 p.m. Pacific time. There is on-line support; a 30-day money-back guarantee; and electronic support from CompuServe, America Online, and AppleLink. Several programs are also available for developers and trainers.

We rate support policies good for both versions.

Technical support: Macromedia has a smooth-running technical support department. We usually spend little or no time on hold. When answering our questions about Action, staff members were courteous and knowledgeable, although they could not identify any specific Macintosh system extensions that caused problems. We waited, on average, 7 minutes per call.

We rate technical support good for both versions.

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VALUE:
At $495, Action is a fairly priced presentation program that will run circles around the traditional presentation programs that do not have animation or sound. However, the product does not lend itself to the standard slide-presentation format. Both versions lack an integrated outliner that is the heart of popular presentation packages. It is designed for presenters who want to show their presentation on a computer or on video.

The Windows version is a sure bet if you want to start transforming your static presentations to multimedia ones. The new run-time player is much needed to play your presentations on another PC or have wider distribution without using videotape.

The drawbacks to the Macintosh product are more evident. Its capability to use QuickTime movies and output to video is impressive. However, the numeric charting available in Version 2.0 really is a must for financial presentations, and the linking capabilities must be further developed.

Macintosh Action also lacks a runtime utility and needs some fine-tuning and debugging.

We rate value good for Windows and satisfactory for Macintosh.

Doug Green is director of computer services for a New York state school district and has taught computer programming. Denise Green is an educational computer consultant and teaches computer use to adults. Jim Canning is an independent multimedia title developer with Stratos Systems, in Sunnyvale, Calif.

IN FOCUS

SCOTT MACE

Editor-at-Large

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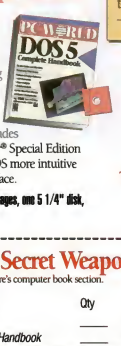

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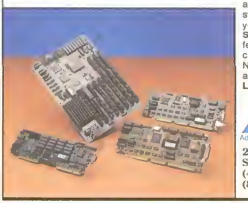

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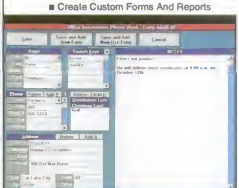

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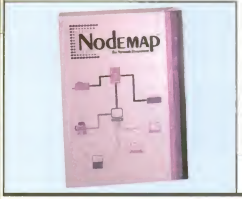

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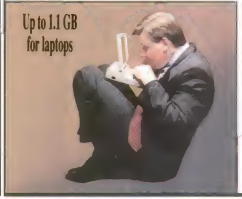

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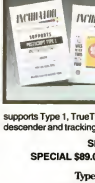

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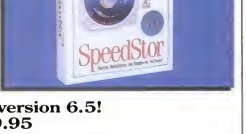

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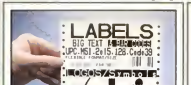

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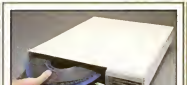

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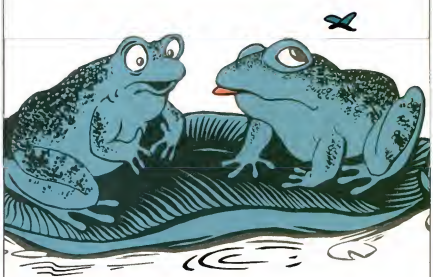

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UPCOMING IN INFOWORLD

Notebook PCs *December 21, 1992*

For the first time, *InfoWorld* conducts a "battle of the processors" in a report on 25-MHz 486SX (Intel) and 486SLC (Cyrix) notebook PCs. Evaluating units from ALR, Grid, Texas Instruments, Toshiba, and Twinhead, we'll report not just on overall performance but also on those key attributes of a notebook PC: size, weight, and battery life.

Fax Servers *December 28, 1992/January 4, 1993*

These hardware-software combinations let you send and receive faxes right from your desktop via your LAN. And that lets you share text, graphics, and data without making frequent trips to the printer and the fax machine. *InfoWorld* compares complete desktop fax solutions from Gammalink, Intel, OAZ, and Castelle, with an eye to ease of setup and use in accomplishing typical faxing tasks, features sets, and technical support.

Windows Databases for End-Users *January 18, 1993*

More and more Windows databases for end-users are entering the market, and most claim to be very easy to use. *InfoWorld* tests that claim and more with six new desktop databases for Windows: Approach for Windows, AceFile, Windowbase, FileMaker Pro for Windows, DataEase Express, and Microsoft Access. Adhering to our new task-oriented method for evaluating products, we'll carry out a variety of typical user activities with each database package and report on ease of use and speed of query processing and report generation, as well as take a look at networkability.

486DX2/66 File Servers *January 25, 1993*

With a gigabyte of storage and 16 megabytes of RAM, these PCs are fully configured to run as file servers. In line with our commitment to enterprise-oriented product evaluation, *InfoWorld* assesses 486DX2/66 systems from eight leading manufacturers, including AST, Compaq, Dell, IBM, and HP, all running under "real-network" conditions with some 50 clients. We'll measure their speed using scripts based on several popular Windows and DOS applications and report on expandability, design, and workmanship.

High-End Project Management Software *February 1, 1993*

These high-end packages offer the power to exercise enterprisewide control over the project management process, including resource leveling, cost control, and scenario management. *InfoWorld* compares five DOS- and Windows-based market leaders in the category: Parris Enterprise, Open Plan, Artemis Prestige, Project Planner, and Project Workbench for Windows.

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MICROSOFT / from page 1

E-mail vendors blast Microsoft

Mail, AT&T, CompuServe, Lotus Development Corp., and WordPerfect Corp.

Microsoft conceded that Extended MAPI, which will include the missing Service Provider Interface (SPI) needed for writing E-mail servers, will not be commercially available until the next major release of Windows, in late 1993 or in early 1994.

"We've got no confidence that this date's any more solid than any other we heard," said David Bezaire, CompuServe product manager of electronic mail.

Microsoft denies it misled anyone. "Our original dates were Q3 and now we're Q4, but I don't think that should make anybody really upset," said Susan Fine, MAPI product manager.

A developers' kit for Extended MAPI will ship in March, which should give developers enough time to write and test their servers before the next major release of Windows, according to Fine.

However, many ISVs disagreed. "Now that the Service Provider Interface has been delayed and pinned to Extended MAPI, there's a frustration out there in the ISV community that there's no open way other message transport systems can tie into MAPI," said Dave Clare, WordPerfect director of product marketing.

Extended MAPI could let developers write various types of E-mail clients and servers that can be used interchangeably.

Windows for Workgroups shipped in October with "Simple" MAPI, which enables developers to write mail-enabled client applications that use the Microsoft Mail client that is built into the user interface, Fine said.

Without the SPI portion, however, developers cannot write MAPI-compliant E-mail servers, Fine conceded.

IBM / from page 1

IBM to peddle microkernel technology

operating systems to run applications from other platforms. The microkernel versions of DOS and OS/2 go to beta early next year.

"We think there is a real opportunity to coalesce a lot of the unique kernel work going on in the world around a set of standards," said Lee Reiswig, who was just promoted last week to president of IBM's personal software products division.

"When you are dealing with a nuclear power [Microsoft], you have to have one of these plans," Reiswig said.

The standard would essentially be built on a set of device drivers that could grow as developers added capabilities, eliminating the need to resculpt existing software "every time a new environment comes along," Reiswig said.

The microkernel-based systems will primarily be the server half of IBM's client/server strategy for OS/2. The client part will be OS/2 2.x as well as versions expected next year. The microkernel will run better on machines with 4 megabytes of memory and have much improved LAN-client support, IBM said.

"The microkernel-based systems will be larger and more complex, capable of running multiple operating systems like OS/2 and Unix," Reiswig said, noting these systems will contain multiprocessor support. "They are best suited for running on machines that use chips like [Intel Corp.'s] Pentium," Reiswig said.

"There are a lot of vendors of proprietary operating systems with very large customer sets that can't keep up with the IBMs and Microsofts," said Larry Loucks, director of software architectures for IBM's personal systems group.

Some of IBM's microkernel technology will be used in the object-oriented operating system being developed by Taligent.

In the first half of next year IBM will release beta versions of tools based on Taligent technology called application frameworks.

APPLE / from page 1

To broaden Mac access to NetWare

will be much more homogeneous within NetWare."

With the Finder in place in NetWare and DR DOS, Apple would be in a position to claim multiplatform compatibility for its Open Collaborative Environment and would later move key portions of its operating system including Apple Events such as Publish and Subscribe and QuickDraw GX into the Intel/DOS/Windows environment, said sources familiar with the two companies' plans.

In return, Novell would gain a much friendlier user interface for its NetWare NOS and the beginning of peer-to-peer capabilities for DR DOS.

Together, the two companies would also present more formidable competition for Microsoft Corp., which is competing directly against NetWare with LAN Manager and recently added peer-to-peer capabilities to Windows with its Windows for Workgroups product line.

Although Apple declined to comment on the story, industry analysts and third-party companies said the proposed alliance would be beneficial to both companies, as well as to users.

"In retrospect, this is what they should have done with Finder a lot earlier," said Tim Bajarin, president of DB Unlimited, a Brooklyn, N.Y., custom database development firm, said Access is slow, can't attach FoxPro files and indexes directly, has difficulty doing mail merges with Microsoft Word, and skips over validations if the user doesn't enter information into data fields, according to Adams. "I would not try to do any applications with it right now," Adams said.

Dealers have reported shortages of Access, based on brisk sales at the $99 price. But some have speculated that the shortage is due to Microsoft pulling the product back to fix bugs. A Microsoft official denied that was the case.

— *Scott Mace contributed to this report.*

ACCESS / from page 1

Microsoft rushes Access to market

out the door."

A Microsoft official said the company was unaware of the bugs but was investigating the alleged problems. Access has been under development for more than six years. It shipped in October.

The problems users reported were underscored last week at Database World in Chicago, where an audience gathered to hear a keynote speech and see a demonstration of the product querying SQL Server. Access crashed during the demo.

Many of the complaints last week were reported on CompuServe. One user experienced corrupted data files, with data "disappearing" from fields. When the user rekeyed the data, he received a "duplicate key" message. In another case, data duplicated itself more than 10 times.

The same user experienced key fields that jumped from one to another, and he received I/O read errors when copying and pasting data.

Others complained of general protection fault errors that caused crashes and poor macro language performance.

Pat Adams, an Access beta tester and user, thinks the product is not ready for prime time. Adams, president of DB Unlimited, a Brooklyn, N.Y., custom database development firm, said Access is slow, can't attach FoxPro files and indexes directly, has difficulty doing mail merges with Microsoft Word, and skips over validations if the user doesn't enter information into data fields, according to Adams. "I would not try to do any applications with it right now," Adams said.

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— *Scott Mace contributed to this report.*

FIRST LOOK / from page 1

Dell's 486SX system is no average clone

Upgrading the box to a 486DX or even a 50-MHz clock-doubling CPU is a cinch because the CPU sockets are right out in the open, as is everything else. The CPU socket also has the extra row of pins needed to accommodate an upgrade to Intel's forthcoming Pentium chip when it ships next year.

Adding memory SIMMs is easy, again because there's nothing between you and the sockets.

The new Dell design also incorporates diagnostic routines in ROM. Most competitive machines that go down cannot be diagnosed until you can make them boot and read a floppy, which sometimes means you have to fix them before you can get help figuring out what's wrong. The Dell diagnostics run even if the machine isn't able to boot DOS.

Once the problem component is pinpointed, swapping in a replacement is a piece of cake. The cover is held by two thumbscrews and slides off easily. Removing power supplies or drives requires loosening two screws. Snapping the motherboard out and snapping a new one in takes about a minute flat.

Dell continues to offer one-year of on-site service and lifetime free support, falling short of Compaq's new three-year warranty.

Video performance is among the snappiest we've seen. The VGA controller is on the motherboard, with a proprietary local bus link to the CPU.

The price of the machine we tested, with a 120-megabyte hard drive, 8 megabytes of memory, an interlaced Super VGA monitor, video memory upgrade, 5¼- and 3½-inch floppy drives, DOS 5.0, Windows 3.1, and a Microsoft mouse is priced at $2,119.

Dell Computer, in Austin, Texas, can be reached at (800) 289-3355.

BORLAND / from page 1

Kahn admits poor marketing hurt Borland

It was not just Microsoft Corp.'s price cuts on its Excel spreadsheet and Access database that have hurt Borland, Kahn said. The company miscalculated how much delayed products would hurt them and did a poor job marketing Quattro Pro for Windows.

"We were eight months late with [Quattro Pro], and we probably lost some customers because of that," Kahn said at the Technologic Partners PC Outlook conference.

Kahn viewed Paradox for Windows, Borland's database offering, would ship before February 1.

Borland's CEO also said the company's Windows-DOS promotion hasn't worked out very well. Under the program, Borland offered Quattro Pro for Windows and DOS bundled at a cut-rate price.

"We didn't do a good job with that; it confused a lot of people. They thought it was actually a new product," Kahn said.

"Borland didn't realize that for someone who was buying a Windows spreadsheet, a DOS program was not of value," said Chris LeTocq, an industry analyst at InfoCorp., in Santa Clara, Calif.

Borland's missteps and Microsoft's aggressive moves have altered the spreadsheet wars. After three months of shipment, Borland still has only a 25 percent share of the Windows spreadsheet market, far behind Microsoft's market share, according to Software Publishers Association figures quoted by Borland.

The lower than expected sales will show up in Borland's balance sheets next month. "We may have a small profit or a small loss, I just can't say now," Kahn said. Revenues however, will be in the $112 million to $120 million range.

REVIEWS / TEST DRIVES

First Look / Kevin Strehlo

CD package shares excitement of search for extraterrestrial life

The cover of Warner New Media's *Murmurs of Earth, the Voyager Interstellar Record* shows what's inscribed on the gold-coated copper phonograph record and stylus strapped to each of the two Voyager spacecraft. The image is an incredibly terse manual for building a device to play back the 118 photographs and 90 minutes of music carefully stored in the record's grooves.

Will the life-form that retrieves the record from interstellar space understand that the icons represent the record's underlying wave and raster format and that the dashes express the correct speed to rotate the record (a binary translation of units representing the fundamental vibration period of the hydrogen atom)? Having succeeded, will these aliens thus understand the physical and emotional essence of our lives here on Earth?

I don't know, but I bet they'll have an easier time than I did simply getting the *Murmurs of Earth* CD ROM to play back. I gave up after trying three PCs.

SIMPLISTIC, BUGGY, BUT WORTHWHILE. The *Murmurs of Earth* PC package currently in stores is incompatible with VGA accelerator cards. Fortunately, the Macintosh version works fine. But even the Macversion and the more compatible PC update due in February (free to anyone who buys now) reduce a high-powered computer to a mediocre slide projector.

Nevertheless, I highly recommend *Murmurs*. It is worth the price ($59.99 suggested retail) even if you never access the data track of the CD ROM. The CD's music tracks range from the delightful raucousness of Chuck Berry to an intoxicating sitar raga to the earthy intellectuality of Beethoven to the soul-searching of a Navajo ceremonial chant to the longing for companionship expressed in Blind Willie Horton's "Dark Was the Night."

The book, which includes all the photos contained on the CD ROM, delves deep into the original rationale and the political interventions behind the ultimate music and photo selection. The terse icons used in attempts at extraterrestrial communication make a fascinating puzzle, and the text is an able guide. The pictorial essay Carl Sagan and his colleagues put together is a thought-provoking exploration of the meaning of life on Earth.

And yet, *Murmurs* could have been so much more.

BILLIONS AND BILLIONS. I first became interested in Carl Sagan's work when my astronomy class at Cal used his book *In Search of Intelligent Life in the Universe* as one of our texts. It includes one of my favorite theories: The extinction of the dinosaurs was caused by a climatic change that killed off a fern with laxative properties, causing the dinosaurs to perish of constipation. No doubt that book would make intriguing and action-packed infotainment if properly computerized, and the same can be said for the book included with *Murmurs*, which Sagan contributed to and edited.

Murmurs' computerization could have been a billion times better. Where is the video clip of the Voyager launch? Where is the animation of the projected paths of the Voyager space craft, showing Voyager 1 passing Uranus in 1986 and not entering another planetary system for 10 billion years? Where is an audio clip of B.M. Oliver's cogent comment to Sagan, which should play when you double-click on the image of the plaque from the Pioneer space probe: "There is only an infinitesimal chance that it will ever be seen by a single extraterrestrial, but it will certainly be seen by billions of terrestrials. Its real function, therefore, is to appeal to and expand the human spirit, and to make contact with extraterrestrial intelligence a welcome expectation of mankind."

Hypertext would be ideal for explaining how to interpret the diagrams the way extraterrestrial intelligence would, or why the male and female in one photo in the sequence on reproduction are silhouetted. A pop-up window could show the uncensored photograph of them that NASA was afraid would offend conservative senators.

And the music should be integrated into the interactive presentation. You wouldn't need to go so far as Microsoft's CD ROM of Beethoven's *Ninth Symphony* — but certainly you'd like to start the music and read in a window about the piece playing and why it was included. And how about an index that brings up with a double-click anything of even vague interest — even President Jimmy Carter's message to the extraterrestrials?

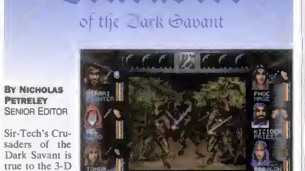
Clearly, there are better computerizations of space exploration. Space Adventure from Knowledge Adventures Inc. is far more interactive and fun and could make a young astronaut wannabe a very happy (and knowledgeable) space enthusiast.

Yet there is something awe inspiring about *Murmurs* that puts it high on my gift list. In a billion years, when the Earth has been burned to a crisp by the sun's evolution into a red giant, its story of a long-gone epoch on Earth, locked into the grooves of a record still winging its way through space, may be the only remaining wisp of our civilization. It's not often you can give a gift as timeless as that.

You can reach Warner New Media, in Burbank, Calif., at (800) 593-6334.

Kevin Strehlo is InfoWorld's executive editor, testing and reviews. First Look examines new products before they have been through a formal review.

This week, the Test Drives section takes a Christmas break to present our second annual games spread. When you've had it up to your disk drives with business applications, pop in one of these packages and create a simulated critter-infested jungle, head off down the fairway, or play the No. 1 record on the interstellar charts. Each game here has an enthusiastic InfoWorld *employee seal of approval.*



By Nicholas Petreley
Senior Editor

Sir-Tech's Crusaders of the Dark Savant is true to the 3-D you-are-there adventure genre. The roads, scenery, and hallways are all viewed from the perspective of the characters you're playing. You see doors open in front of you, watch the monsters you fight, and even view the sun rise and set as time passes.

There's a lot to dislike about this $69.95 DOS game — the trailing-edge graphics, the awkward and unintuitive user interface, the overuse of monsters, the wordy, melodramatic text.

Then why is it, I ask you, that my wife and I stay transfixed before the computer, playing this game into the wee hours of the morning?

Maybe it's the corny humor — giving figurines names like Tydnab Emyt (time bandit spelled backward, kind of). Perhaps it's the instant gratification of promoting your characters every few fights.

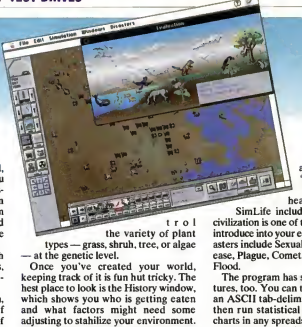
Whatever it is, Crusaders of the Dark Savant is one of the most compelling and playable games I've ever come across. It's easy to get immersed in its diverse fantasy world. There seems to be no end to the problems you must solve and the places you can go: mountains, forests, cities, dungeons. Despite its flaws, Crusaders of the Dark Savant gets a hearty thumbs up from this gamester.

Sir-Tech, in Ogdensburg, N.Y., can be reached at (315) 393-6633.

Spice up your documents or holiday invitations with one of these Bitstream Inc. Li'l Bits font packs: Winter Holiday, Star Trek, and The Flintstones. Each $29.95 pack ships with several scalable TrueType fonts for Windows 3.1; the Winter Holiday and Star Trek font packs also offer character sets.

You can call Bitstream, based in Cambridge, Mass., at (617) 497-6222.

SimLife



By Karen Brophy
Assistant Reviews Editor

Ever wanted to play God? Now's your chance.

SimLife, the latest Macintosh-based simulation from Maxis (maker of SimCity and other you-are-the-creator environmental simulation games), is a genetic playground in which you design the world and its creatures, right down to the genetic code of plants and animals.

At first, playing God isn't easy. Maxis offers a tremendous amount of control and number of possibilities. And terms such as "genome" and "phenotype" may be difficult for kids to grasp. However, once I ran the tutorial, all was explained, and I was up and running in no time.

You start by creating your own world, its climate, topography, and food. You can even add toxins (a skull and crossbones icon) or mutagens (a radiation icon). To populate the world, you can choose from a hearty list of predesigned animals and plants (100 in all) or create your own species.

Each predesigned life-form comes with a large matrix of possible characteristics, which you choose from a chart resembling flash cards.

For animals, you can control food eaten, intelligence level, movement, place of residence, gestation time, and number of offspring. In another window you can specify life span, health, food, water, mutation rate, and more. You also control the variety of plant types — grass, shrub, tree, or algae — at the genetic level.

Once you've created your world, keeping track of it is fun hut tricky. The best place to look is the History window, which shows you who is getting eaten and what factors might need some adjusting to stabilize your environment.

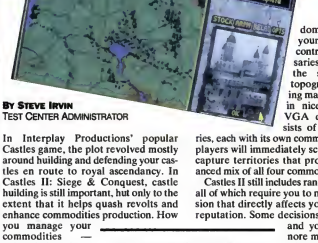
When animals mate, a male or female voice moans "ooh-la-la" (funny at first, hut annoying after a while). When an animal dies, it says "ooh," and when a baby is born, you hear chimes.

SimLife includes no humans, but civilization is one of the disasters you can introduce into your ecosystem. Other disasters include Sexually Transmitted Disease, Plague, Comet, Fire, Drought, and Flood.

The program has some advanced features, too. You can track your worlds in an ASCII tab-delimited file format and then run statistical analyses or create charts in any spreadsheet or database.

SimLife lists for $69.95. You can reach Maxis, in Orinda, Calif., at (510) 254-9700; fax: (510) 253-3736.

CASTLES II



By Steve Irvin
Test Center Administrator

In Interplay Productions' popular Castles game, the plot revolved mostly around building and defending your castles en route to royal ascendancy. In Castles II: Siege & Conquest, castle building is still important, but only to the extent that it helps quash revolts and enhance commodities production. How you manage your commodities — gold, timber, iron, and food — is the key to reaching the throne in Castles II.

Tasks fall into three categories: administrative, military, and political. Depending upon which ones you elect to carry out, the tasks expend various amounts of commodities. Knowing how to balance use of these resources is crucial. The three task categories also reflect different approaches to obtaining the throne; you can win the game through might, diplomacy, or administrative power.

It's essential to keep the Pope happy because only he can approve a petition to the throne.

You start as one of five hopefuls in the race to be King of Bretagne. While you are busy putting your expanding kingdom in order, your computer-controlled adversaries are doing the same. The topographic playing map, rendered in nice 256-color VGA detail, consists of 36 territories, each with its own commodity. Wise players will immediately scout out and capture territories that provide a balanced mix of all four commodity types.

Castles II still includes random events, all of which require you to make a decision that directly affects your fate and reputation. Some decisions are tough, and you can't ignore most of them without consequence.

Also, throughout the game you must monitor your relationships with key nonplaying characters, such as the Pope. Though it's a good idea to stay on friendly terms with all other characters, it's essential to keep the Pope happy because only he can approve a petition to the throne.

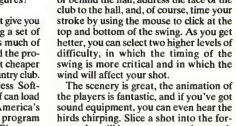
Once the Pope recognizes an eligible claimant (whoever scores the highest), the other players have an opportunity to wrest the throne away through sabotage or combat. If the others cannot change the Pope's mind, the game ends with the coronation.

A window displaying movie clips of certain key events, such as marching troops, or citizens in revolt, is a nice touch, and a light baroque melody (with supported sound cards) also helps add to the overall medieval atmosphere.

Castles II: Siege & Conquest ($59.95) succeeds nicely at testing a player's strategic and diplomatic mettle and gives statesmen and warriors alike an equal stah at fame and conquest.

You can reach Interplay Productions, hased in Santa Ana, Calif., at (714) 545-9001.

Golf



By Patrick Marshall
Contributing Editor

Tired of banging away on that corporate report? Need a hreak from crunching the month's sales figures? How about a round of golf?

Microsoft Corp.'s Golf may not give you the physical workout of lugging a set of clubs over 18 holes, hut it offers much of the mental respite and fun. And the program's list price of $64.95 is a lot cheaper than greens fees at your local country club.

A Windows version of Access Software's Links 386, Microsoft Golf can load Links' wide assortment of America's most famous golf courses. The program comes with one course: Torrey Pines.

Microsoft Golf provides the same excellent control over your golfing technique that Links does. In addition to selecting the club you want to use, you can adjust your feet, position yourself ahead of or behind the hall, address the face of the club to the hall, and, of course, time your stroke by using the mouse to click at the top and bottom of the swing. As you get hetter, you can select two higher levels of difficulty, in which the timing of the swing is more critical and in which the wind will affect your shot.

The scenery is great, the animation of the players is fantastic, and if you've got sound equipment, you can even hear the hirds chirping. Slice a shot into the forest and you'll hear a very yuppie-sounding voice say, "I think I hit a tree, Jim."

You can reach Microsoft, in Redmond, Wash., at (800) 426-9400.

Media Vision thing: Multimedia will flourish like color

In the hype-filled world of multimedia, Media Vision Inc. is one company that is actually shipping a lot of products and making a lot of money. The company reported sales of $17 million for the quarter ended September 30, up from $2.7 million a year earlier. (That's a growth rate of 630 percent if you are counting.) Its sound-enabling Windows Upgrade Kit, also sold by Creative Labs and recently Microsoft, is this season's must-have product, giving users an exploratory look at the capabilities of multimedia technology. Even Wall Street has smiled on the company, which had a successful initial public offering last month.

Paul Jain, president of Media Vision, talked to Shawn Willett, InfoWorld's business writer, last week about how Media Vision plans to ride the current multimedia wave and those beyond.

InfoWorld: How long can you keep your incredible growth rates up?

Jain: So long as computers continue to get shipped in very large numbers and as long as prices continue to come down, new computer owners will want to bring some excitement and bring more depth into their computers. It is a difficult question for any CEO to answer, but I think we can sustain these growth rates for a fairly long time.

InfoWorld: How many of the sound boards are going into corporate environments?

Jain: It is very difficult for us to say where these products are going. Companies like Boeing, Coca-Cola, all the accounting firms — all of those folks now have pilot studies under way on how they can use audio in computers. But, they are only pilots. I wouldn't say "thousands," but I would say probably several hundred.

InfoWorld: Are corporate sales growing as a percentage of your sales?

Jain: Absolutely. It is difficult to give a precise breakdown, but I'd say that of the 2 million audio cards and 200,000 upgrade kits we ship this year, about 25 percent are being used by corporations or in corporate-type applications.

Corporate usage will increase. When color first became a part of the computer environment, it was embraced initially by the hobbyist. Eventually the corporations started buying color screens because they increased productivity. It is the same for audio and full-motion video.

InfoWorld: Right now, though, people are bringing sound boards in for their own PCs. How will that change to become a corporate buy?

Jain: As we get more corporate applications — as word processors have sound embedded in them and networking software has sound embedded in it — I think you will find corporations saying wholesale, "Hey, we need sound to take advantage of this."

InfoWorld: It sounds as if you are looking for some kind of "killer application."

Jain: Again I go back to my comparison with color. Color was an enabling technology — human beings see in color. I think sound is an enabling technology. Certainly, one can speculate about killer apps, such as voice-annotated E-mail. That's a no-brainer.

ONE ON ONE

Paul Jain
President and CEO
Media Vision
Fremont, Calif.
Age: 47

InfoWorld: Microsoft is selling its own sound board. What is to prevent it or some other big company from wiping out all the smaller companies?

Jain: Microsoft, as a specific example, is not a hardware company; it does not design silicon. It has to buy silicon from companies like us. There is another reason Microsoft is not a threat: OEMs like Dell, Compaq, and IBM will never buy a hardware product from Microsoft because they're scared to death by Microsoft as it is. Fundamentally, though, the reason we will be able to compete with anyone is that we have very high multimedia technology focus.

InfoWorld: As I understand it, you are putting all the multimedia functionality on a chip set that will plug into an OEM's motherboard. Is this something that an OEM, such as Compaq, really wants?

Jain: Absolutely. I would expect that by the end of 1993 you will see from us an audio single chip for about $20 that has synthesizers in it, compression/decompression, conversions, and mixing all in it.

InfoWorld: Silicon Valley has given birth to lots of quick-starters that have a single, high-demand product. But, eventually, they disappear. What's to ensure that once this boom is over, Media Vision won't fade out too?

Jain: This is the one thing that keeps me awake at night. And I think that the only way to not fall into the same trap is to do things. We have to continuously acquire and develop technology.

At some companies, the founders become very rich and then go on a prolonged vacation. The folks who run Media Vision are really not in this for the short term. Our vision is to be the company that brings usable, inexpensive multimedia to the end-user. We've taken the first step, but the most difficult steps are ahead of us.

Notes From the Field / Robert X. Cringely

Bill may win the battle but lose the war: Access beached by early ship

We all watched the Marines hit the beach last week in Somalia, thanks to television. And those Leathernecks, who still haven't learned that any publicity is good publicity, were upset about the coverage. They made lots of harrumphing sounds about bright lights blinding the troops and compromising security, but the truth is they didn't want us watching in case something went wrong.

"Medic! Medic! I've been blinded by a Frisbee!"

The military doesn't want us to know how they conduct their business. They aren't the only ones who feel that way.

ACCESS DENIED. There is always image and reality, and they rarely have much in common. I, for example, have built a comfortable career on practically nothing. Like nearly everyone else, most of the time I'm faking it. Please don't tell.

Microsoft is no exception. The kids from Redmond went on the offensive recently with their Access database, beating Paradox for Windows to market by more than a month. Did they rush the product just to beat Borland? I think so.

Access users are finding bugs galore. Microsoft has stopped production, supposedly to wait for more boxes, but you can bet those new boxes will carry a new version number. And take a look at page 59 of the Access *Introduction to Programming* manual, where they use this example of how to declare constants:

```
const RELEASE-DATE = #1/1/93#
```

Software is *never* early, so I bet that testing was cut short for political reasons. And politics hardly ever cares about the little guys — you and me — the customers.

SEMI-DIRECT. Part of what makes this image vs. reality business so effective is that we want to believe in the image. It's too frightening to think that the rest of the world is as disorganized as we are. *We want* to believe, for example, that IBM is a model of business efficiency, fine-tuned to respond to customer needs. Sorry.

Order some Token Ring cards from IBM Direct on Monday, then order some more cards on Wednesday, and some on Friday. They'll all arrive on the same day, because IBM Direct only ships on Fridays. Call earlier in the week and your order just sits in a queue, waiting for pay day.

OOPs! Then there are other companies that give us more than we've paid for. Just think how excited programmers become when they learn (they have to know to ask — it's a secret) that some of the math functions in Borland's Turbo C++ 3.1 don't return their proper values.

The problem is in the 386 code generator, which has trouble with some long integers, resulting in what are usually subtle errors.

The work-around, according to Borland tech support, is: 1) simplify math expressions, or; 2) don't use 386 code.

THINGS YOUR MOTHER NEVER TOLD YOU. More images and reality. WordPerfect Office 4.0 is supposed to ship in the first quarter, but that will require that March be made 60 days long. The kids in Orem, who have special clout with the Big Guy, are working on the extension.

AMI, the BIOS and motherboard folks from Norcross, Ga., have until recently charged sales tax on out-of-state orders. That's a no-no, so ask for a refund and tell 'em Bob sent you.

Finally, a bug in Intel's 32-bit EISA Ethernet card tells the NetWare print server to print 32,000 copies of every network print job. *If* you notice the problem, the only way out is to kill the print queue and turn off the printer to get it to stop, unless it's already spooled, which means you have to bring down the server.

An Ethernet card not even Metcalfe could love. Hey, despite my flaws, please call me with an industry secret at (415) 312-0555; fax: (415) 326-0326; cringe@infoworld.com, or MCI:CRINGE.

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